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KNOWLEDGE CENTER OUTSOURCING

Offshore Buyer's Guide

Offshore IT outsourcing has become an "irreversible megatrend," as one analyst put it. Check out this guide to the strengths, weaknesses and risks of India and 10 other countries, so you'll know what you're getting into. **Stories begin on page 25.**

ONLINE EXCLUSIVE

Our **Global Outsourcing Tool Kit** provides Web links to useful resources like a currency calculator, a time-zone converter and official reports on 11 countries.

QuickLink 40927 computerworld.com

Attacks on New Windows Flaws Expected Soon

Experts say hackers have a head start in taking advantage of latest holes found in Microsoft OS

BY JAIKUMAR VIJAYAN

Companies will have even less time than usual to properly protect themselves against attackers attempting to take advantage of three critical flaws in Windows software that were revealed last week by Microsoft Corp.

Because the flaws are nearly identical to the one that the Blaster worm exploited last month, users can expect to see copycat attacks in the very near future, according to several security experts. As a result, it's important for companies to patch their systems or otherwise protect themselves against the flaws as expeditiously as possible, they said.

That sentiment was echoed by the U.S. Department of Homeland Security, which last week warned of the "potential for significant impact on Internet operations" because of the vulnerabilities.

"DHS believes that exploits are being developed" for the new flaws, the agency said in a bulletin.

Some users took the warning seriously.

"I'm pretty certain that an attack will happen faster than it did with Blaster," said Mike Tindor, vice president of network operations at First USA Inc., an Internet service provider in St. Clairsville, Ohio. The company has already installed patches against the new threat and has also

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WORM CENTRAL

For additional coverage see our **Viruses and Worms Center** online

QuickLink at260 computerworld.com

Users Unite to Keep MPE Alive

Get HP to agree to plan for emulator to ease e3000 migration

BY PATRICK THIBODEAU

A group of Hewlett-Packard Co. users and independent consultants is trying to keep the HP e3000's aging MPE operating system alive after HP ends its support in 2006.

The group, OpenMPE Inc., has reached an agreement in principle with HP on a key aspect of the MPE survival plan: permission to create an emulator that would enable the operating system to be used on other HP hardware.

But the effort faces a dilemma. Third parties such as HP's channel partners and consulting firms that may develop an emulator don't know if there's enough commercial demand to justify the investment. Potential users who are preparing migration plans, meanwhile, say they need to know soon whether an emulator is actually coming.

The HP e3000 installed base, which analysts estimate is in the range of 10,000 to 20,000 users, typically runs mission-critical applications such as reservations systems. The base is a who's who of large corporate users that, according to OpenMPE, includes American Airlines Inc., Chase Manhattan Bank USA, Exxon Mobil Corp. and Ford Motor Co. And many of those users are getting antsy.

"It's still vaporware," said Jim Haeseker, manager of technical operations at General

MPE, page 14

Users Wary of Linux Report

Microsoft-financed research leaves many doubtful of objectivity

BY CAROL SLIWA

Microsoft Corp.'s strategy of getting out "the facts" on Linux by commissioning analyst firms to prepare reports comparing Windows with the open-source operating system may not have the impact the company had hoped.

The minute that Mark Schunder, a software developer at a major automaker, saw a news story last week on *Computerworld*'s Web site about the latest Microsoft-commissioned report [QuickLink 41163], he dismissed it as "very suspect" and said he didn't bother to finish reading it.

"I wasn't surprised by anything in the article. A Microsoft-commissioned report is going to be one-sided," he said. "I'd be surprised if they came out with a report that put them in a bad light."

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NEWSPAPER

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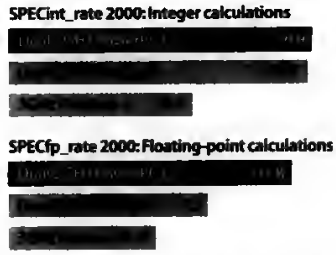
The world's fastest personal computer.

The new Power Mac® G5 is here. It's the world's fastest* personal computer, and the first with a 64-bit processor. At its heart are two revolutionary PowerPC G5 processors,

The PowerPC G5 chip
The world's first 64-bit processor for personal computers.

running at speeds up to 2GHz. And since these are 64-bit processors, they can access up to 8GB of memory in the Power Mac G5, which is double the 4-gigabyte memory ceiling of every other PC in the world. The G5 processors also have the world's fastest frontside bus, running at 1 gigahertz, which gets data to the processor almost twice as fast as the 533-megahertz bus found in the next-fastest personal computer (a dual 3.06GHz Xeon machine).



Independent tests show the Power Mac G5 edges out the competition on integer and blasts past them in floating-point.

In side-by-side speed tests using industry-standard benchmarks, the dual 2.0-gigahertz Power Mac G5 is up to 41% faster than both the fastest Pentium 4 and dual-processor Xeon workstation. And the results get even better when using real-world applications: the new Power Mac G5 runs Photoshop more than twice as fast as the fastest PCs. Further tests reveal there are similar gains across a wide range of applications, from music and video to science and mathematics.

The PowerPC G5 chip is based on IBM's highest-performance 64-bit supercomputer processors.

Impressed? We haven't even touched on the Power Mac G5's other features. Like its ultrahigh-bandwidth system architecture, featuring AGP 8X, PCI-X, FireWire® 800, Gigabit Ethernet, up to 500 gigabytes (yes, that's half a terabyte) of internal Serial ATA storage and a SuperDrive® for DVD authoring. All inside a stunning, professional-quality aluminum enclosure that features four discrete computer-controlled cooling zones for whisper-quiet operation. Together, they make the Power Mac G5 a true breakthrough in personal computing.

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KNOWLEDGE CENTER OUTSOURCING

Offshore Buyer's Guide

Welcome to the world of offshore software manufacturing. India is the clear leader, but other countries are nipping at its heels, promising lower costs or special advantages. So we've produced a guide to the strengths, weaknesses and risks in 11 countries that CIOs might want to explore.

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Vietnam. A "country in progress," Vietnam offers low labor costs but still faces some communications and modernization challenges for its facilities.

43 Malaysia. An emerging outsourcing player, Malaysia has invested heavily in a high-tech corridor to lure international business. But a sluggish economy and small workforce have slowed the country's momentum.
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46 Opinion: Bart Perkins says there are different types of offshore outsourcing vendors. Pick the type that fits your company's culture, requirements and risk profile.

Offshore Security: Considering the Risks. Security risks from offshore outsourcing of IT infrastructure may be no different from other security risks, but as in all business deals, careful investigation of business partners and an understanding of your own security needs are paramount. QuickLink 40798

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AT DEADLINE

Profits Up, Sales Down for Oracle

Oracle Corp. reported a 28% year-over-year increase in first-quarter profit, but its revenue from new software sales fell short of expectations. Oracle said new sales amounted to $525 million in the quarter that ended Aug. 31, down 7% from last year's first-quarter level and well below Wall Street predictions of nearly $600 million. Chief Financial Officer Jeff Henley said the company "had a number of deals slip" during the quarter.

MCI Plea Denies Oklahoma Charges

WorldCom Inc., which now does business under its MCI brand name, pleaded not guilty to the felony charges that Oklahoma's attorney general filed against the company and six of its former executives last month. In another matter, MCI announced a proposed settlement deal with two groups of creditors that had objected to its Chapter 11 bankruptcy restructuring plan.

Hacker Arrested For Times Break-in

Adrian Lamo, a hacker who has publicized his intrusions into various corporate networks, was due to appear in federal court in New York late last week for an initial hearing on charges that he broke into systems at The New York Times Co. in February 2002 [QuickLink 27609]. Lamo, 22, surrendered to U.S. marshals in California and was ordered to report to the FBI in New York.

Short Takes

HEWLETT-PACKARD CO. this week plans to announce new products for small and midsize companies. . . . INFORMATICA CORP., a Redwood City, Calif.-based data integration vendor, will pay $62 million to buy Scotts Valley, Calif.-based STRIVA CORP., which sells mainframe integration software.

High-Tech's Use of H-1Bs Drops

But some IT industry groups fear Oct. 1 decrease in visa cap will hurt economy

BY PATRICK THIBODEAU
WASHINGTON

COMPANIES will likely move quickly to gobble up H-1B visas next month, to ensure that they get the workers they need before the new, sharply reduced cap of 65,000 is reached, immigration experts said last week.

The cap will decline from 195,000 on Oct. 1, the start of the new federal fiscal year, and that's almost certain to bring pressure from high-tech groups for Congress to raise it. The groups argue that the cap needs to be kept at the higher level as the economy improves.

They also stress that the cap isn't being abused, and to bolster that argument, they're likely to cite a U.S. Department of Homeland Security (DHS) report released Thursday that shows a sharp decline in H-1B visa use by companies that hire foreign workers with IT skills.

The DHS report, which breaks down H-1B usage by industry, says that in the "computer systems design and related services" category, which is the largest group, the number of approved H-1B petitions fell from 141,267 in 2001 to 50,776 in 2002.

"This kind of puts to rest the idea that we are throwing Americans out in the street and hiring H-1Bs to replace them," said Thom Stohler, a vice president of the American Electronics Association, a trade group representing the high-tech industry that has advocated a higher H-1B cap. The decline "is reflective of the downturn in the industry," he said. But an improving economy will be hurt by restrictions, supporters argue.

Additional Limits

The U.S. Senate Judiciary Immigration Subcommittee is scheduled to hold a hearing tomorrow on the H-1B cap, but there's no legislation pending to prevent the cap from falling. In fact, the opposite is occurring. Legislation introduced in Congress so far would limit some visa programs, such as the L-1, which is used by multinational firms to transfer employees. One bill would set a cap on the L-1 to 35,000 annually; there is now no cap on it.

Opponents have long argued that U.S. workers have lost jobs because of the H-1B visa program. But it's unclear whether U.S. workers will be helped by the cap reduction.

Some may benefit. "It's going to put a premium on U.S.-based IT professionals who have the ability to manage distributed projects," said Sam Sliman, executive vice president at Optimal Solutions Integration Inc. in Irving, Texas.

But Kiran Karnik, president of the National Association of Software and Service Companies, a New Delhi-based IT trade group, maintained that in the long run, a cap reduction could prompt U.S. companies to move a larger percentage of work offshore.

According to some immigration experts, businesses may move quickly to apply for H-1B visas for recent computer science graduates, especially those in the U.S. on student visas, which remain valid for a year after graduation.

But if they wait, "there is the possibility that employers will find themselves in a situation where the H-1B cap is exhausted," said Jo Anne Adlerstein, an immigration lawyer at Proskauer Rose LLP in New York.

George McClure, who heads the career policy committee of the Institute of Electrical and Electronics Engineers Inc., said he hopes the cap reduction improves job prospects for U.S. workers. He estimated that U.S. jobs are lost to offshore workers at a rate of about 3% per year.

H-1B Cap Attack

The H-1B visa, which allows foreigners to work in the U.S. for up to six years, has been capped at 195,000 for the past three years.

2003: So far, 58,000 visas have been issued against the cap. Another 84,534 have been issued that are exempt from the cap. These include visas for people who work at universities and for nonprofit research groups.

The trend: H-1B demand is rising. In January, nearly 16,000 visas were approved. In June, that number grew to just over 20,000.

IN-DEPTH H-1B

For more on H-1B visas, visit the special coverage page on our Web site.
QuickLink s1400
www.computerworld.com

Extreme Networks Upgrades Switch Management Apps

BY MATT HAMBLEN

Extreme Networks Inc. later this month plans to release an upgraded management module for its BlackDiamond 6800 switches that company officials said supports instant fail-over and no downtime for software upgrades.

The higher level of reliability and availability in the MSM-3 software was designed for corporate LANs and metropolitan-area networks (MAN) that can't afford any downtime, said Timoo Sloane, director of product management at Santa Clara, Calif.-based Extreme.

Robert Jacobs, director of network services at Phonoscope Communications Inc. in Houston, said the voice and data communications carrier has been testing MSM-3 on a BlackDiamond switch for two weeks with no problems. "Our hot button was that there was a seamless upgrade, but also the fact that you get . . . closer to 99.999% reliability," he said.

The greatest potential improvement, Jacobs noted, is that once the MSM-3 software is installed, code revisions and upgrades can be done without rebooting Extreme's switches. Previously, nodes on the MAN that Phonoscope operates in the Houston area had to be taken off-line for three to five minutes to do upgrades. "With our customer base, there's no good time for downtime, period," he said. "Even three minutes is unacceptable."

Jacobs expects to buy and install the new software on his switches by December. Phonoscope, which has been an Extreme shop since 1999, operates a 10 Gigabit Ethernet network over nearly 40,000 miles of fiber in five counties.

> **"With our customer base, there's no good time for downtime, period."**
>
> **ROBERT JACOBS,** DIRECTOR OF NETWORK SERVICES, PHONOSCOPE

Sloane said MSM-3's instant fail-over capability compares with a 12-second lag for redirecting network traffic to other switches with Extreme's existing software. The new module has a list price of $13,995.

Zeus Kerravala, an analyst at The Yankee Group in Boston, said the software upgrade will keep Extreme on technical par with rivals such as Foundry Networks Inc. and Enterasys Networks Inc. All three companies are vying for business against switch market leader Cisco Systems Inc. and Nortel Networks Ltd.

Novell to Drop ZENworks From Linux Tool Bundle

Will instead use server management software acquired through Ximian deal

BY MATT HAMBLEN

Novell Inc. last week said it plans to use newly acquired systems management tools instead of including its own ZENworks technology in a Linux software package that's due to go into open beta testing next month.

At the company's BrainShare Europe 2003 conference in Barcelona, Spain, Novell officials said the Red Carpet tools developed by Boston-based Ximian Inc., which Novell bought last month, will be included in the Nterprise Linux Services 1.0 bundle. Red Carpet offers capabilities such as automated distribution of software updates and patches to servers. The bundle will also include file, print, messaging and directory services.

Novell had announced in June that ZENworks would be the management tool in the Nterprise Linux Services package. "ZENworks would have worked, but our engineers found Red Carpet was closer to meeting the needs of our customers," Novell spokesman Kevin Barney said last week when asked about the change.

At BrainShare, Novell also announced plans to release a suite of networking software for branch offices and upgrades of its Web applicatioo development and single sign-oo products (see chart).

Several users in the U.S. said they were pleased to see Novell moving forward with its Linux strategy, which is intended eventually to result in the full NetWare services stack being made available on Linux systems [QuickLink 39484].

"If NetWare file and print will run oo Linux, that will be a hell of a direction to go," said Doug Boval, a systems engineer at St. Vincent Hospital in Indianapolis. Like other users, Boval said he hopes to begin testing the upcoming Linux software soon.

"A number of us here don't care for Microsoft products and don't want to pay exorbitant fees," added George Raetzke, a senior systems programmer at Northern Illinois University in DeKalb. Raetzke is testing NetWare 6.5, the latest release of Novell's flagship product, for use by 20,000 students and staff members at the school. But be also wants to try Nterprise Linux Services.

Carl Ness, distributed information systems coordinatot at Clarke College's Keller Computer Center in Dubuque, Iowa, also welcomed Novell's latest Linux announcement, but with some reservations.

"Novell is known for good software, and if they are building software for Linux, it's probably going to be top-notch," Ness said. "But despite what they say, a lot of people are still concerned they are dumping NetWare. A lot of system admins, in colleges as well as the corporate world, are still on the fence wbeo it comes to moving mission-critical systems to Linux."

Laura DiDio, an analyst at The Yankee Group in Boston, described Novell's Linux strategy as a "me too" initiative that might not be as attractive as using software from more established Linux vendors like Red Hat Inc. or IBM.

> **"Novell has the Midas touch in reverse: They take gold and turn it into dust."**
>
> LAURA DIDIO, ANALYST, THE YANKEE GROUP

DiDio added that Novell has had trouble selling its software to large businesses in recent years. "Novell has the Midas touch in reverse: They take gold and turn it into dust," she said.

In response, Richard Maddox, director of product marketing at Novell, said the company is counting on Linux to help it rebound. "There might have been truth to the loss of enterprise customers, but since we announced Linux, we are slowing that down," Maddox said. "Linux will bring us to a brand-new world."

UPS Tests Wi-Fi at Retail Stores, Eyes Global Rollout

Public-access traffic will share corporate network

BY BOB BREWIN

United Parcel Service Inc. this week will dip its toe into the public-access Wi-Fi market by launching a test of the wireless technology at 66 of its retail packaging and shipping stores in the Chicago area.

Nick Costides, retail technology group manager at Atlanta-based UPS, said the company plans to use the Wi-Fi test to gauge customer interest in the service. If there's enough demand, UPS will roll out Wi-Fi services at more than 3,000 U.S. locations.

Costides is also looking at making Wi-Fi access available in the 1,000 UPS retail outlets that are located in other countries. "Everything we do has a global view," he said.

UPS will piggyback Wi-Fi connections to the Internet on a nationwide network that serves its in-store computers and point-of-sales systems, Costides said. The network uses DSL links witb an average data throughput of 256Kbit/sec., although some cable modems are also used.

Data Traffic Separated

Costides said UPS has isolated and secured the portion of the network that will carry public Wi-Fi traffic from the part that transmits corporate data. During peak usage periods for the in-store systems, the company's network managers will be able to cut back on Wi-Fi throughput to avoid performance hits, be said.

Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., said the piggybacked connections planned by UPS are a key to developing nationwide Wi-Fi access capabilities. But that's also the most expensive option, be noted. And if the service is popular, UPS might need to install T1 pipes with 1.54Mbit/sec. transmission rates, Reiter said.

Wi-Fi setups use 802.11b wireless LAN technology to provide 11Mbit/sec. connections betweeo users' laptop PCs and wireless access points. Datamonitor PLC, a market research firm in London, predicts that the oumber of Wi-Fi hot spots worldwide will grow from 31,000 this year to 135,000 by 2007.

UPS rival FedEx Corp. has considered offering public-access Wi-Fi to its customers but has seeo little demand for the technology thus far, said Ken Pasley, director of wireless systems development at tbe Memphis-based company. He noted that FedEx's retail locations and the customer service counters at its shipment hubs are essentially package drop-off and pick-up sites.

UPS's retail operations are built around the Mail Boxes Etc. chain that the company bought in 2001, with most of the locations oow rebranded as The UPS Store. Costides said UPS hopes to use technology such as Wi-Fi to turn the stores into "branch offices for road warriors."

Because the stores are operated by franchisees, UPS needed hardware that was inexpensive and easy to install, according to Costides. The company tapped Toshiba Corp.'s computer systems group to provide a hot-spot-in-a-box system for use in the Chicago trial run.

John Marston, vice president of business development at the Toshiba unit in Irvine, Calif., said its hot-spot hardware costs $199 per access point. Toshiba also provides back-end billing and user authentication services through a partnership with IT consulting firm Accenture Ltd.

PRICING

UPS's Plans

- UPS will adhere to a sliding rate for Wi-Fi access that Toshiba charges, with **prices ranging from $4.95 per hour to a monthly fee of $39.95.**
- It also plans to use promotional offers, such as giving a **free hour of Wi-Fi access to customers who upgrade package shipments from ground to air.**

WIRELESS CHIP DELAY

Intel again postpones the shipment of a dual-band version of its Centrino chip set.

QuickLink 41346
www.computerworld.com

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At BrainShare, Novell also announced plans to release a suite of networking software for branch offices and upgrades of its Web application development and single sign-on products (see chart).

Several users in the U.S. said they were pleased to see Novell moving forward with its Linux strategy, which is intended eventually to result in the full NetWare services stack being made available on Linux systems [QuickLink 39484].

"If NetWare file and print will run on Linux, that will be a hell of a direction to go," said Doug Boval, a systems engineer at St. Vincent Hospital in Indianapolis. Like other users, Boval said he hopes to begin testing the upcoming Linux software soon.

MORE ANNOUNCEMENTS

an upgraded single sign-on tool that includes full Java support and works with non-NetWare LDAP clients. Ships Oct. 17

"A number of us here don't care for Microsoft products and don't want to pay exorbitant fees," added George Raetzke, a senior systems programmer at Northern Illinois University in DeKalb. Raetzke is testing NetWare 6.5, the latest release of Novell's flagship product, for use by 20,000 students and staff members at the school. But he also wants to try Nterprise Linux Services.

Carl Ness, distributed information systems coordinator at Clarke College's Keller Computer Center in Dubuque, Iowa, also welcomed Novell's latest Linux announcement, but with some reservations.

"Novell is known for good software, and if they are building software for Linux, it's probably going to be top-notch," Ness said. "But despite what they say, a lot of people are still concerned they are dumping NetWare. A lot of system admins, in colleges as well as the corporate world, are still on the fence when it comes to moving mission-critical systems to Linux."

Laura DiDio, an analyst at The Yankee Group in Boston, described Novell's Linux strategy as a "me too" initiative that might not be as attractive as using software from more established Linux vendors like Red Hat Inc. or IBM.

> **"Novell has the Midas touch in reverse: They take gold and turn it into dust."**
>
> LAURA DiDIO, ANALYST, THE YANKEE GROUP

DiDio added that Novell has had trouble selling its software to large businesses in recent years. "Novell has the Midas touch in reverse: They take gold and turn it into dust," she said.

In response, Richard Maddox, director of product marketing at Novell, said the company is counting on Linux to help it rebound. "There might have been truth to the loss of enterprise customers, but since we announced Linux, we are slowing that down," Maddox said. "Linux will bring us to a brand-new world."

UPS Tests Wi-Fi at Retail Stores, Eyes Global Rollout

Public-access traffic will share corporate network

BY BOB BREWIN

United Parcel Service Inc. this week will dip its toe into the public-access Wi-Fi market by launching a test of the wireless technology at 66 of its retail packaging and shipping stores in the Chicago area.

Nick Costides, retail technology group manager at Atlanta-based UPS, said the company plans to use the Wi-Fi test to gauge customer interest in the service. If there's enough demand, UPS will roll out Wi-Fi services at more than 3,000 U.S. locations.

Costides is also looking at making Wi-Fi access available in the 1,000 UPS retail outlets that are located in other countries. "Everything we do has a global view," he said.

UPS will piggyback Wi-Fi connections to the Internet on a nationwide network that serves its in-store computers and point-of-sales systems, Costides said. The network uses DSL links with an average data throughput of 256Kbit/sec., although some cable modems are also used.

Data Traffic Separated

Costides said UPS has isolated and secured the portion of the network that will carry public Wi-Fi traffic from the part that transmits corporate data. During peak usage periods for the in-store systems, the company's network managers will be able to cut back on Wi-Fi throughput to avoid performance hits, he said.

Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., said the piggybacked connections planned by UPS are a key to developing nationwide Wi-Fi access capabilities. But that's also the most expensive option, he noted. And if the service is popular, UPS might need to install T1 pipes with 1.54Mbit/sec. transmission rates, Reiter said.

Wi-Fi setups use 802.11b wireless LAN technology to provide 11Mbit/sec. connections between users' laptop PCs and wireless access points. Datamonitor PLC, a market research firm in London, predicts that the number of Wi-Fi hot spots worldwide will grow from 31,000 this year to 135,000 by 2007.

UPS rival FedEx Corp. has considered offering public-access Wi-Fi to its customers but has seen little demand for the technology thus far, said Ken Pasley, director of wireless systems development at the Memphis-based company. He noted that FedEx's retail locations and the customer service counters at its shipment hubs are essentially package drop-off and pick-up sites.

UPS's retail operations are built around the Mail Boxes Etc. chain that the company bought in 2001, with most of the locations now rebranded as The UPS Store. Costides said UPS hopes to use technology such as Wi-Fi to turn the stores into "branch offices for road warriors."

Because the stores are operated by franchisees, UPS needed hardware that was inexpensive and easy to install, according to Costides. The company tapped Toshiba Corp.'s computer systems group to provide a hot-spot-in-a-box system for use in the Chicago trial run.

John Marston, vice president of business development at the Toshiba unit in Irvine, Calif., said its hot-spot hardware costs $199 per access point. Toshiba also provides back-end billing and user authentication services through a partnership with IT consulting firm Accenture Ltd.

PRICING

UPS's Plans

- UPS will adhere to a sliding rate for Wi-Fi access that Toshiba charges, with **prices ranging from $4.95 per hour to a monthly fee of $39.95.**
- It also plans to use promotional offers, such as giving a **free hour of Wi-Fi access to customers who upgrade package shipments from ground to air.**

WIRELESS CHIP DELAY

Intel again postpones the shipment of a dual-band version of its Centrino chip set

QuickLink 41346
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Oracle Grid Computing Plan Faces Obstacles

Ellison bullish on server clustering but acknowledges adoption will be slow

BY MARC L. SONGINI
SAN FRANCISCO

ALTHOUGH MANY users at last week's OracleWorld 2003 conference here said they have an interest in Oracle Corp.'s new grid computing technology, several added that they're not ready to buy into the server clustering plans being pushed by Oracle and other vendors.

Oracle formally unveiled its 10g product line at the conference, after previewing the announcements last month [QuickLink 40474]. CEO Larry Ellison and other Oracle officials said the upgraded database, application server software and management tools are the cornerstone of a full-fledged platform for grid computing installations that split applications across large numbers of low-end servers.

Ellison noted during an open Q&A session that Oracle has been shipping clustering technology for more than a decade. "Now, with 10g, you really can cluster across lots of machines, and we have the management tools to go along with it," he said.

But Ellison acknowledged that it will take time for the grid concept to catch on with users. Most companies "still operate on the principle of using one large machine as the database server," he said. "It's not going to happen overnight, but there will be an inexorable move [to grid computing]. The economics are compelling; the reliability is compelling."

SHOWSTOPPER
Bomb threats temporarily put OracleWorld on hold
QuickLink 41275
www.computerworld.com

Arthur Fleiss, senior manager of the information systems department at New York-based Colgate-Palmolive Co., said the consumer goods maker has been beta-testing Oracle Database 10g for the past month and is interested in exploiting grid computing to improve application reliability and performance. But first, there needs to be "a change in mindset" within his company, he added.

Fleiss said the technical challenges of setting up a grid installation aren't great. But the prevailing view of how to configure systems at Colgate-Palmolive is that there is "one application and one server, and to get people to think beyond that is a change," he said. "That's the biggest hurdle."

Other Oracle users said they're in no rush to implement grid computing. "As far as our environment goes, I don't see a need for Oracle's grid architecture," said Jeremy Forman, a computer systems analyst at the New Mexico State Highway and Transportation Department in Santa Fe.

Forman is beta-testing the 10g database and said he sees the potential benefits of harnessing CPU power across numerous servers. But the highway department doesn't need that kind of performance boost at this point. "Performancewise, we're pretty happy with how the apps work," Forman said.

Oracle didn't say how it will price its software for grid installations. But the company claimed that users will be able to save money by relying on farms of low-cost blade servers that can be quickly expanded when processing demand spikes, instead of running applications on mainframes or large Unix servers that often are underutilized.

Jamie Shiers, database group lead at the IT division of CERN, a scientific research laboratory in Geneva, said Oracle and other vendors must ensure that their products don't become proprietary. "The biggest danger for grid is that it splinters like Unix," Shiers said. If that can be avoided, he added, grid technology should be the wave of the future.

Oracle Continues PeopleSoft Quest

Oracle CEO Larry Ellison fielded questions from users and the press during a session at OracleWorld 2003. Excerpts from his comments follow.

On the status of Oracle's hostile bid to buy business applications rival PeopleSoft Inc.: The government is reviewing our acquisition [offer]. They will let us know what they think in October or November. We have our fingers crossed. We're very determined to complete this acquisition. We're very patient.

On how long it will take for users to accept grid computing as a mainstream IT approach: Most customers don't use RAC [Oracle's Real Application Clusters technology]. I don't think large machines will disappear overnight. This begins a trend. We're going to see a gradual movement from [running software on] one big server to the grid approach.

On different ways of pricing software: Counting processors is very hard. It's also hard to count users. What makes much more sense is the notion of an enterprise license. You pay so much per year for the use of Oracle software and use as much as you want. That's where everything is going.

– Marc L. Songini

PeopleSoft Turns Attention to Real-Time Integration, Speedier Application Rollouts

But Oracle buyout bid still looming

BY MARC L. SONGINI

PeopleSoft Inc. this week will introduce a series of products and disclose more details of its road map for integrating J.D. Edwards & Co. into its operations. But also looming over the company's annual user conference will be the specter of Oracle Corp.'s hostile bid to buy PeopleSoft.

At the Connect 2003 conference, which starts today in Anaheim, Calif., PeopleSoft plans to focus on its support for real-time integration that lets companies rapidly distribute financial data and other information that's key to end users in different departments.

Rick Bergquist, PeopleSoft's chief technology officer, said the Pleasanton, Calif.-based company will also announce software enhancements designed to help IT managers install its applications more quickly and extend them to both internal end users and business partners.

For example, PeopleSoft will roll out a tool that can help automate the application installation process, Bergquist said. Another new tool will be able to automatically connect to PeopleSoft's systems and download the latest software patches, eliminating the need for IT workers to handle that process manually (see chart).

The Connect conference comes two weeks after PeopleSoft revealed initial plans for combining its operations with Denver-based J.D. Edwards, which it bought late last month in a friendly acquisition [QuickLink 41094].

John Schindler, CIO at Kichler Lighting in Cleveland, said he's heading to Connect to get some technical tips and learn about upgrading to PeopleSoft 8.8, the vendor's latest applications release.

Schindler added that he expects PeopleSoft to fend off Oracle's unsolicited takeover bid. "I believe the threat of Oracle being successful is very low," he said.

Also this week, the independent Oracle Applications Users Group will hold its annual North American conference in San Diego. Arthur Hunt, president of the Atlanta-based OAUG and operations manager at Yale University, said Oracle's grab for PeopleSoft is also likely to be a hot topic at the OAUG event.

New From PeopleSoft

- **Four tools to automate** application installation, configuration, performance tuning and updates
- **Out-of-the-box support** for integrating applications like payroll and sales order management with products from other vendors
- **Icon-based** application navigation capabilities
- **Upgraded supply chain and financial management features** in its midmarket EnterpriseOne suite, which was formerly called J.D. Edwards 5
- **The addition of PeopleSoft's user interface** to the EnterpriseOne applications

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BRIEFS

P&G Taps IBM to Run Its HR Systems

Procter & Gamble Co. said it has signed a 10-year, $400 million contract to outsource management of its human resources systems and operations to IBM. Under the contract, IBM will also take over the development of P&G's HR applications. Cincinnati-based P&G outsourced most of its IT operations to Hewlett-Packard Co. last spring in a $3 billion deal [QuickLink 37733].

Sun Setting Linux, Server Pricing

Sun Microsystems Inc. plans to disclose pricing for both its Project Orion server software bundle and its Mad Hatter desktop Linux offering at its SunNetwork conference in San Francisco this week. Sun CEO Scott McNealy indicated during a speech at last week's OracleWorld show that users will get big savings by buying the Orion stack instead of purchasing products individually.

3Com Outsourcing All Manufacturing

3Com Corp. in Marlboro, Mass., said it will cut another 1,000 jobs by outsourcing all of its manufacturing operations. The networking vendor also plans to shift development of its low-end products to a facility in Taiwan that's due to open in late November. The new cutbacks follow a round of layoffs that 3Com announced in June [QuickLink 39138].

Short Takes

AMERICA ONLINE INC. in Dulles, Va., and REUTERS GROUP PLC in London said they plan to make their instant messaging products interoperable. . . . Poway, Calif.-based GATEWAY INC. said it will lay off 850 customer service workers in addition to cutting 450 manufacturing jobs, which it announced earlier this month.

MARK HALL • ON THE MARK

SAP Undertakes Major NetWeaver Overhaul . . .

. . . that will result in the first synchronized release of all the application integration software's components in Q1 2004. Currently, SAP AG ships its various NetWeaver modules separately. For example, Master Data Management 2.0, which lets you maintain cross-platform data consistency, and XI 3.0, an app integration broker, **will hit the street at different times between now and year's end.** According to SAP executives speaking sotto voce, the odds are pretty good that the company will also adopt a common versioning approach so that each of NetWeaver's applications will have the same release number when the overhaul is complete. • Preventing downtime makes a heck of a lot more sense than waiting to hear from irate end users that their favorite application is on the blink. That's ostensibly why Dale Edmiston, senior manager of computer operations at Food Lion LLC in Salisbury, N.C., has CA Unicenter watching over his systems. Turns out **the management framework alone wasn't enough** to give him advance warning that something bad was about to happen to a critical application (though **he certainly wishes it had been,** so he'd have one less vendor to deal with, he says). Since Unicenter fell short, Edmiston turned to Silas Technologies Inc. in nearby Winston-Salem and its Reveille application-monitoring tool. Since installing Version 2.0, Edmiston claims he has had "saves on every application we've got monitored, and it's improved our break-to-fix time." That success ought to entice him to look closely at Reveille 2.5, which ships today. The upgrade adds its agent-free monitoring capabilities for Oracle database versions 8.1 and higher; allows more out-of-the-box reports on application service levels, such as peak-time analysis; and imports XML files for things such as on-call lists that determine which technician should be summoned for particular problems that Reveille identifies. Expect to pay $10,000 and up for every application you want Reveille to watch over. • Silas, which is four years young, **gets some of its revenue from consulting with IT shops** on approaches for monitoring apps while they're still in development. That strategy would please Paul Carbone, managing partner at Baird Venture Partners in Milwaukee, the private equity arm of the venerable Robert W. Baird & Co. investment bank. "We're not looking just for technology in the companies we invest in," he says. "We like the wrap-around of services in'[a product] offering." So, what IT services markets does Carbone believe will grow fastest? **"We like the interface between technology and regulation."** The hottest regulation? "Sarbanes-Oxley offers a lot of consulting models." And while everyone seems to be in a lather about security, Carbone is lukewarm on the market potential of start-up companies in that arena. "The value of security products is still constrained by the cost," he claims. His advice to CIOs looking at products from newbie companies: **Don't just look at their balance sheets,** which are often intentionally kept to the bare bones. "Call the company's VCs directly." Very often, he says, they'll tell you how much they have ready to invest in the start-up over time. • One start-up that claims to have enough venture capital in the bank to last through the end of next year is Kashya Inc., which **hopes to be able to add to its cash horde starting Oct. 1,** when it ships its first product, the KBX 4000. The San Jose-based company's new appliance handles long-distance data replication over IP networks. The 1U-tall rack-mounded device is based on IBM's Linux servers but uses proprietary software to back up disk arrays according to a schedule that can be set for real-time replication to off-hours backup. You need to set up two devices for failover purposes on each end of the data replication process. **The appliances work with low-cost ATA disk drives** and have Fibre Channel connectors to connect to your storage-area network. Pricing is set according to the amount of data you back up. ◗

San Diego's [illegible] believes SANs should be simple, which is why its new ZStar line of host bus adapters has a Windows style GUI, a dead-simple configuration tool and automatic performance tuning for different application types. The adapters will ship for Windows at the end of the month and for Linux by December. Street pricing should be about $800 per port.

Proposed Calif. Law Could Add to Data Reporting Burden

BY JAIKUMAR VIJAYAN

Companies doing business in California may soon be required to keep detailed records of all the customer data they sell to third parties for direct-marketing purposes.

If a bill that was considered by the state Assembly last week passes, California residents will have the right to ask companies they deal with to provide details of any personal information sold to direct marketers.

California's proposed SB 27, also known as the "Shine the Light" bill, was initially introduced by Sen. Liz Figueroa in December. It was defeated in the Assembly last month and then reintroduced last week with some amendments.

If passed, the bill could prove "quite burdensome" to implement, said Walter Janowski, an analyst at Gartner Inc.

Customer data that's sold for direct-marketing purposes is commonly available as lists, he said. "The ability to query an individual customer's record, determine if it is on a particular list, and track the sales and sharing activity of that list is typically not a functionality that is at the fingertips of most marketers today," Janowski said.

In principle, the bill is a positive step for consumers, said Michael Overly, a partner at Foley & Lardner, a Los Angeles law firm.

"Imposing an obligation on companies to track this sort of data is a great idea, there's no doubt about it," Overly said. "But it is going to be incredibly costly policing the law."

Louis Mastria, director of public and international affairs at the Direct Marketing Association in New York, last week said his organization is strongly opposed to the bill. The DMA already has strict guidelines relating to the manner in which personal information is used by member companies, so the proposed legislation is unnecessary, he claimed. ◗

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For coverage of other privacy-related developments in California, visit our Web site

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BRIEFS

P&G Taps IBM to Run Its HR Systems

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BRIEFS

Bill Joy Leaving Sun

After more than 20 years at Sun Microsystems Inc., co-founder and Chief Scientist Bill Joy was leaving the company, Sun announced last week. Joy was the leading designer of some of Sun's key technologies, including Solaris software, Sparc microprocessors and Java technology. "I have decided the time is now right for me to move on to different challenges," Joy said in a statement.

EDS Inks $426M Outsourcing Deal

Heating and air conditioning equipment manufacturer York International Corp. in York, Pa., has signed a 10-year, $426 million IT outsourcing deal with Electronic Data Systems Corp. Plano, Texas-based EDS will take over "a good majority" of York's IT infrastructure management, including its PCs, global network, servers and e-mail system, EDS said. An unspecified number of York IT employees will transfer to EDS.

Server Vendors Aim for Standards

A group of server vendors led by Intel Corp. will launch an effort to standardize the building and management of blade and rack servers this week at the Intel Developer Forum in San Jose. Initiative members, which include Dell Inc., Hewlett-Packard Co. and IBM, plan to develop common application programming interfaces, hardware interconnects and sizes for the high-density servers, industry sources said.

Short Takes

China's RED FLAG LINUX SOFTWARE CO. is preparing to release an English-language version of its Red Flag Desktop 4.0 operating system. . . . Neil Day left his position as CIO at WALMART.COM to become chief technical officer at Mountain View, Calif.-based software vendor VELOSEL CORP.

Continued from page 1

Windows

closed several ports that could be exploited in an attack.

"I think it's critical that people patch immediately when a new update comes out," said David Krauthamer, director of information systems at Advanced Fibre Communications Inc. in Petaluma, Calif. The telecommunications equipment manufacturer osed Microsoft's automated Security Update Services to download and patch more than 200 servers against the new flaws last week.

The holes exist in the remote procedure call (RPC) protocol used by the Windows operating system. Two of them are buffer overrun vulnerabilities that could allow an attacker to take full administrative control of a victim's system. An attacker who exploited these flaws would be

able to take a variety of actions, including installing malicious programs, deleting data or creating new accounts, according to Microsoft.

The third flaw is a denial-of-service vulnerability that could allow RPC services to hang and become unresponsive, according to Microsoft.

It's not difficult to develop exploits for the new holes, said Max Caceres, director of product management at Core Security Technologies, a Boston-based vendor of security software and services.

Core Security was able to write attack code capable of compromising systems in the manner described by Microsoft in a matter of bours after the bulletin was announced, he said.

"In this case, it was pretty fast because the vulnerabilities are very similar to the last one," Caceres said. "The attack vector is exactly the same. The only change is in where the vulnerabilities exist."

"We always assume that if we can do it, there are others out there who can do it," said Dan Ingevaldson, an engineering manager with the X-Force respoose team at Internet Security Systems Inc. (ISS) in Atlanta.

ISS was able to develop an exploit for the RPC vulnerability used by Blaster within 12 hours, using just the information gleaned from the patcb Microsoft issued to deal with the flaw.

With the latest vulnerabilities, hackers have an existing code base to work with, security experts said. Consequently, the window of time that administrators usually have to test and patch systems before a malicious exploit is crafted is going to be smaller than usual, predicted Jerry Brady, chief technology officer at Guardeot Inc. in Waltham, Mass.

"There's a lot of exploit code available for the last RPC vulnerability that would only require very small modifications" to be effective against the new flaws, Brady said. ◗

FAULTY PATCH

A hole in Explorer that Microsoft supposedly fixed still posed a threat last week.

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Continued from page 1

MPE

Chemical Corp. in Parsippany, N.J. Haeseker, who is involved in the OpenMPE effort, said that although an emulator could be developed at some point, he's not planning on it for his e3000 mission-critical applications, such as order processing. But, he added, "if an emulator were available now, that might be a different story."

Similarly, Eric Bender, coordinator of computer services at John Abbott College in St. Anne De Bellevue, Quebec, said he won't consider an emulator in his migration planning unless he's convinced it will be built.

"Time is running out," said Bender, who doesn't want to be left with unsupported hardware past the 2006 deadline. He wants his migratioo plan to be ready by next June.

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Tries to crack enterprise market

BY CAROL SLIWA

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BRIEFS

Bill Joy Leaving Sun

After more than 20 years at Sun Microsystems Inc., co-founder and Chief Scientist Bill Joy was leaving the company, Sun announced last week. Joy was the leading designer of some of Sun's key technologies, including Solaris software, Sparc microprocessors and Java technology. "I have decided the time is now right for me to move on to different challenges," Joy said in a statement.

EDS Inks $426M Outsourcing Deal

Heating and air conditioning equipment manufacturer York International Corp. in York, Pa., has signed a 10-year, $426 million IT outsourcing deal with Electronic Data Systems Corp. Plano, Texas-based EDS will take over "a good majority" of York's IT infrastructure management, including its PCs, global network, servers and e-mail system, EDS said. An unspecified number of York IT employees will transfer to EDS.

Server Vendors Aim for Standards

A group of server vendors led by Intel Corp. will launch an effort to standardize the building and management of blade and rack servers this week at the Intel Developer Forum in San Jose. Initiative members, which include Dell Inc., Hewlett-Packard Co. and IBM, plan to develop common application programming interfaces, hardware interconnects and sizes for the high-density servers, industry sources said.

Short Takes

China's RED FLAG LINUX SOFTWARE CO. is preparing to release an English-language version of its Red Flag Desktop 4.0 operating system. . . . Neil Day left his position as CIO at WALMART.COM to become chief technical officer at Mountain View, Calif.-based software vendor VELOSEL CORP.

Continued from page 1

Windows

closed several ports that could be exploited in an attack.

"I think it's critical that people patch immediately when a new update comes out," said David Krauthamer, director of information systems at Advanced Fibre Communications Inc. in Petaluma, Calif. The telecommunications equipment manufacturer used Microsoft's automated Security Update Services to download and patch more than 200 servers against the new flaws last week.

The holes exist in the remote procedure call (RPC) protocol used by the Windows operating system. Two of them are buffer overrun vulnerabilities that could allow an attacker to take full administrative control of a victim's system. An attacker who exploited these flaws would be able to take a variety of actions, including installing malicious programs, deleting data or creating new accounts, according to Microsoft.

The third flaw is a denial-of-service vulnerability that could allow RPC services to hang and become unresponsive, according to Microsoft.

It's not difficult to develop exploits for the new holes, said Max Caceres, director of product management at Core Security Technologies, a Boston-based vendor of security software and services.

Core Security was able to write attack code capable of compromising systems in the manner described by Microsoft in a matter of hours after the bulletin was announced, he said.

"In this case, it was pretty fast because the vulnerabilities are very similar to the last one," Caceres said. "The attack vector is exactly the same. The only change is in where the vulnerabilities exist."

"We always assume that if we can do it, there are others out there who can do it," said Dan Ingevaldson, an engineering manager with the X-Force response team at Internet Security Systems Inc. (ISS) in Atlanta.

ISS was able to develop an exploit for the RPC vulnerability used by Blaster within 12 hours, using just the information gleaned from the patch Microsoft issued to deal with the flaw.

With the latest vulnerabilities, hackers have an existing code base to work with, security experts said. Consequently, the window of time that administrators usually have to test and patch systems before a malicious exploit is crafted is going to be smaller than usual, predicted Jerry Brady, chief technology officer at Guardent Inc. in Waltham, Mass.

"There's a lot of exploit code available for the last RPC vulnerability that would only require very small modifications" to be effective against the new flaws, Brady said.

WHAT TO DO

Protection Plan

INSTALL the patch provided with Microsoft security bulletin MS03-039.

EMPLOY these temporary work-arounds if necessary:

- **Disable DCOM on all affected machines**
- **Block UDP Ports 135, 137, 138, 445 and TCP Ports 135, 139, 445, 593 at the firewall**
- **Disable COM Internet Services and RPC over HTTP**

FAULTY PATCH

A hole in Explorer that Microsoft supposedly fixed still posed a threat last week

QuickLink 41193
www.computerworld.com

Continued from page 1

MPE

Chemical Corp. in Parsippany, N.J. Haeseker, who is involved in the OpenMPE effort, said that although an emulator could be developed at some point, he's not planning on it for his e3000 mission-critical applications, such as order processing. But, he added, "if an emulator were available now, that might be a different story."

Similarly, Eric Bender, coordinator of computer services at John Abbott College in St. Anne De Bellevue, Quebec, said he won't consider an emulator in his migration planning unless he's convinced it will be built.

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NEW FEATURES

- Volume Shadow Copy Service for high-fidelity backups and rapid data restores
- Improved file serving performance
- Multipath I/O support
- Better integration with SANs
- iSCSI support

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Real-Time Data Demand Challenges Energy CIOs

Proposed federal rules, market shifts require IT changes

BY THOMAS HOFFMAN
BROOMFIELD, COLO.

WIDESPREAD market changes and proposed federal mandates are putting new burdens on IT managers at U.S. power companies to deliver real-time financial and operational data to corporate executives, as well as to customers, regulators and key business partners.

But many IT departments face obstacles in meeting such demands. The challenges include high costs, tight deadlines and organizational inertia, according to CIOs and analysts at Meta Group Inc.'s 2003 Energy Information Strategies conference here last week.

For instance, the Federal Energy Regulatory Commissinn has proposed a mandate called the Standard Market Design in an effort to create a more competitive national wholesale market for electricity. The FERC proposal, which was issued in July 2002 and modified in April, is being considered by Congress as part of a sweeping energy bill.

But one of the problems with the proposed rules is that the business executives who helped craft them didn't go far enough in communicating with their IT departments "to understand what the IT ramifications are," said Dennis Fishback, CIO at Calpine Corp., a San Jose-based company that operates power plants and offers a mix of power-generation services.

Mark Griffin, chief operating officer at Midwest Independent System Operator Inc. in Carmel, Ind., said the ISO expects to invest between $120 million and $130 million over the next few years on new technologies and professional services to help "refit" existing systems to meet the market restructuring requirements.

ISOs administer the wholesale electricity markets in individual states or regions of the U.S. The tab for New York Independent System Operator Inc. to modify its applications is expected to reach about $100 million, said Kenneth Fell, CIO at the not-for-profit company in Guilderland, N.Y.

ANOTHER LOOK
Cost pressures make IT outsourcing more attractive
QuickLink 41274
www.computerworld.com

The FERC proposal, which would require companies to settle energy transactions more quickly, is expected to force power generators and distributors to expand their investments in collaborative technologies such as enterprise application integration (EAI) software, Web services and Internet portals, said Terry Ray, an analyst at Meta Group.

The mandate also would drive further investments in analytical software and data warehouses to help energy companies "sense and respond" faster to changing market conditions, said Rick Nicholson, director of Meta Group's energy consulting practice.

But the difficulty of complying with evolving market requirements extends beyond technical challenges. IT managers at the conference pointed out that they often have to be the instigators of real-time data delivery projects and couch them in business terms to convince senior management of their importance.

Gene Zimon said that before he became CIO at Boston-based electric and gas utility NStar two years ago, EAI "was sold as a technology effort, and it didn't fly." Zimon has since emphasized the business case for EAI investments, including the ability for senior executives to view daily performance information through a Web portal that NStar's IT team is developing.

Action Items

Conference attendees said energy industry CIOs should:

- **Challenge vendors to deliver technologies** that can meet mandates for faster and more frequent deliveries of transaction data to end users.
- **Work closely with business executives** to identify information that has to be made available quickly and applications where latency is permitted.
- **Develop data analysis mechanisms** to help business units react quickly to economic and regulatory changes.
- **Educate senior management** about the business improvements that could be produced by IT investments.

E-mail Recovery Options Increase

E-mail seen as a critical system for some businesses

BY TONN B. WEISS

The increasingly business-critical nature of e-mail is prompting some companies to take backup measures specifically designed to retain access to their e-mail systems in the event of a disaster.

Reinsurance company Max Re Ltd. in Hamilton, Bermuda, had taken such measures before Hurricane Fabian hit the island earlier this month. And online business publication Forbes.com in New York was prepared when the massive blackout struck the Northeast last month. But the two companies took dramatically different approaches to the problem.

Max Re took a bare-bones, software-centric route, using the Emergency Messaging System (EMS) backup application from Austin-based MessageOne Inc. The software enabled the company to set up backup e-mail capabilities for 52 users in only a few hours, said Kevin Lohan, vice president of technology and systems at Max Re.

"Fabian came in at quite an inopportune moment," Lohan said, noting that the company was still several months away from fully plotting its disaster recovery strategy.

Max Re is setting up a disaster recovery system in its Dublin offices for redundancy. But even when it's completed, the system will take 12 to 24 hours to go live in an emergency, Lohan said. While Max Re's other critical business systems might be able to wait that long, e-mail has to be back up much faster, Lohan said.

E-Mail Backup

Two approaches to retaining e-mail access in an emergency:

MessageOne	Evergreen Assurance
Software-based hosted service	Hosts dedicated redundant e-mail servers
Contact lists and addresses backed up	Full access to old mail
No dedicated hardware required	Contact lists and addresses backed up
Relatively low cost	Relatively high cost

MessageOne EMS is Linux-based software that backs up users' address books, contact lists and other critical information to provide instant access in an emergency if the main e-mail system goes down, said Mike Rosenfelt, a MessageOne spokesman. That data is hosted on MessageOne's servers and can be accessed from any Internet-connected PC.

The service doesn't back up old e-mail, cutting expenses for storage and bandwidth. "It's a life-support system until you can go to recovery," said Rosenfelt. Pricing for EMS runs between 80 cents and $8 per user per month, depending on the number of users.

Forbes.com, meanwhile, uses Microsoft Exchange backup services from Evergreen Assurance Inc. in Annapolis, Md. Its hardware-based approach provides full backup of all old messages, as well as address books and contact lists.

Evergreen uses dedicated servers that activate in 15 minutes following a service outage. These redundant e-mail servers reside in an Evergreen data center.

"Our customers are demanding that they have access to both their [old e-mail] and their [current e-mail] applications," said company founder Michael Mulholland.

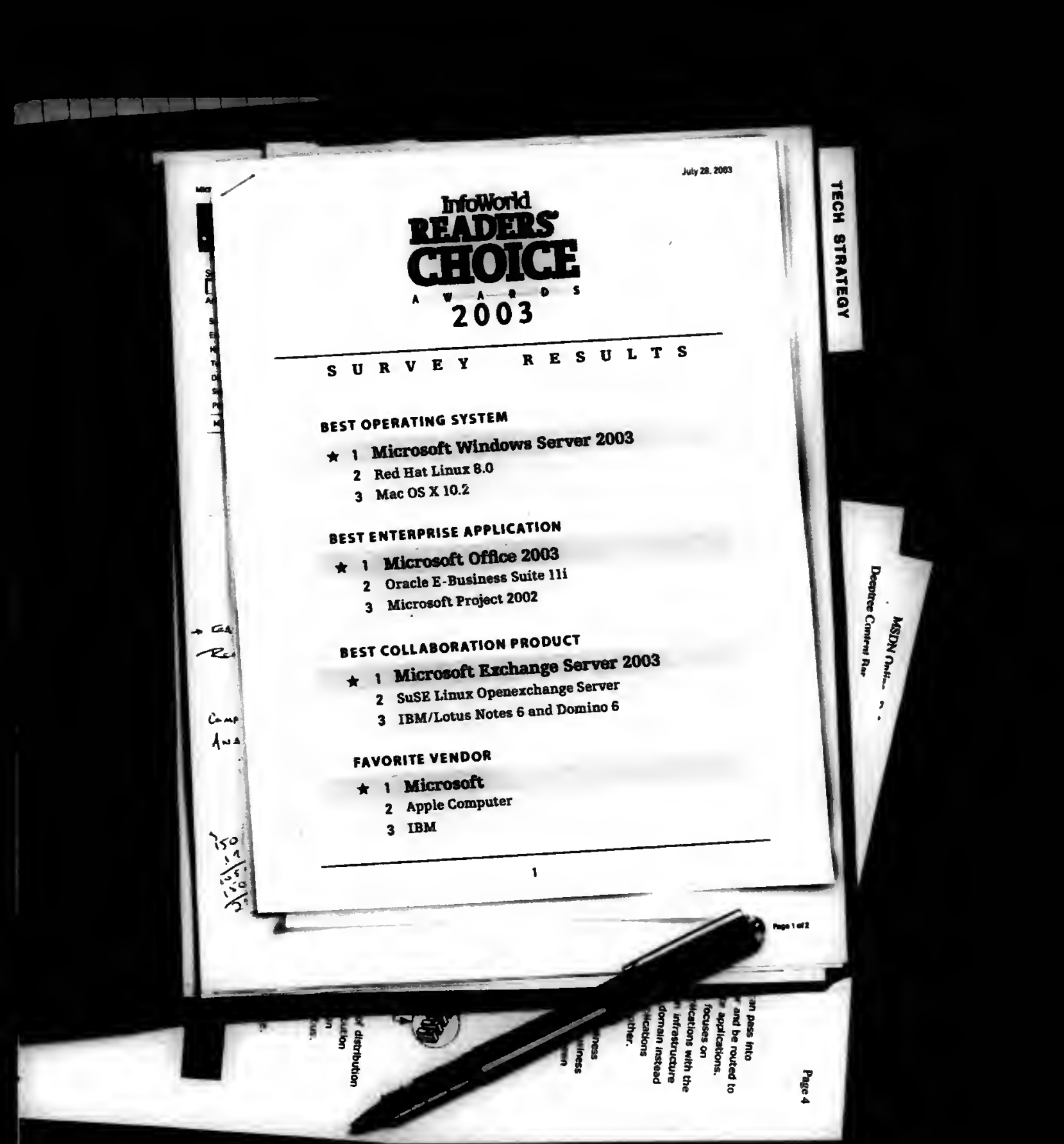
Michael Smith, chief technology officer at Forbes.com, said his 85 users had e-mail capability almost immediately after the blackout hit.

Evergreen's fees begin at about $5,000 monthly for 250 users and can be up to $30,000 monthly for 5,000 users.

But both approaches may be overkill for some users, said Mike Gotta, an analyst at Meta Group Inc. in Pleasanton, Calif. "I'm not denying that e-mail is critical communication, but so is the telephone," Gotta said.

For marketing companies or communications businesses, where "the bloodstream is information," there's a reasonable need, he said. But for manufacturing companies, getting factories up and running quickly is likely to be more critical, Gotta said.

"I'm just not sure that I'm in the camp that I can only conduct my business if I can get my e-mail back up," he said.



Trust the opinion that matters. Yours. *InfoWorld* surveyed more than 1,000 readers and the message was clear. Microsoft is the top provider of software and services in several key enterprise areas. To see how these products can work for you or to view the full survey results go to **microsoft.com/infoworldawards**

Microsoft

SHARP

Digital Document Security and IT: Everything you need to know.

Q: What are the most significant digital copier security issues?

A: Various copier print controllers are actually servers that queue and permanently store multiple document files, providing administrator access to the documents. At a minimum, most digital copiers retain the last document processed; some even retain multiple documents totaling hundreds of pages. Others redirect print jobs when the printer is busy or jammed, making 'denial of service' attacks possible.

Q: How does Sharp protect the network interface?

A: The Sharp Ethernet card allows administrators to restrict access and disable unnecessary protocols. With this network card, the Sharp digital copier is essentially protected by its own firewall.

Q: How can you be sure that security products actually perform as claimed?

A: The Common Criteria program—administered by the U.S. National Security Agency and the National Institute of Standards and Technology—evaluates security solutions. Products that are validated under the program meet security levels consistent with ISO 15408 methodology.

Q: How can Sharp improve IT security?

A: Sharp offers print privacy solutions designed to restrict unauthorized personnel from seeing confidential materials. Copier access can be controlled and monitored, while documents retained in printer/copier/scanner/fax memory are immediately cleared to eliminate unauthorized access.

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Microsoft Agrees to Settle Suit by Former Rival Be

BeOS fans look to re-create discontinued PC operating system

BY PATRICK THIBODEAU

Microsoft Corp. last week said it will pay $23.3 million to settle an antitrust lawsuit filed last year by now-defunct rival Be Inc. But the deal might not be the last burrah for Be's operating system if some determined developers succeed in re-creating the software.

In its February 2002 lawsuit, Mountain View, Calif.-based Be alleged that Microsoft had entered into anticompetitive agreements with PC makers, effectively blocking Be's efforts to have its operating system sold alongside Windows on systems.

Microsoft denied the charges, and it didn't admit to any wrongdoing as part of the agreement to settle the lawsuit, which was filed in U.S. District Court in Baltimore. The settlement terms, other than the payment amount, will remain confidential, Microsoft said.

But BeOS, which was noted for its ability to handle multimedia applications on desktop PCs, hasn't been entirely forgotten. About 30 developers are trying to re-create the features of the operating system through reverse engineering, in order to let users run third-party applications written for BeOS. The initiative, called OpenBeOS, is a volunteer effort, participants said.

"This is about the love of the technology — it's about wanting to work on an operating system that doesn't make me miserable," said Michael Phipps, a Rochester, N.Y.-based developer who is heading OpenBeOS.

About two-thirds of the work has been completed, and the first version of the reborn system should be finished next year, Phipps said. He added that for trademark reasons, the group plans to change the software's name.

Be's technology assets and intellectual property were bought by handheld device vendor Palm Inc. in late 2001. That company's PalmSource Inc. operating system subsidiary in Sunnyvale, Calif., last week declined to discuss its plans for using the BeOS code.

BeOS never achieved a measurable market share percentage, "but it's not to say there are no users," said Al Gillen, an analyst at IDC in Framingham, Mass. "There was a user community for BeOS, and they were very supportive of the environment."

Among those users is Mark Shier, who operates a business called Gaukler Medieval Wares in Victoria, British Columbia, that sells jewelry and medieval artifacts via the Web. Shier continues to rely on BeOS and Web development tools that were written for the operating system. "I like the responsiveness, speed, lack of crashing and lack of viruses," he said.

MICROSOFT'S LEGAL BATTLES

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Marines Enlist Enigma's Tools for Vehicle Maintenance

Content management software could help extend life of transports

BY TODD R. WEISS

The U.S. Marine Corps is working with content management software vendor Enigma Inc. in an effort to streamline maintenance and repair work on about 770 light armored vehicles (LAV) that are designed for battlefield use.

The Burlington, Mass.-based company last week said the Marines plan to use its Enigma 3C Platform software to develop a series of interactive technical manuals so LAV crews can diagnose problems and make in-the-field repairs to their vehicles.

The electronic manuals will provide online access to service information and parts catalogs for all eight LAV models used by the Marine Corps, Enigma said. In addition, the software will be linked to onboard diagnostics and configuration management systems, as well as parts-ordering and inventory management applications. The company said those links will let the Marines stockpile spare parts for the LAVs and then rapidly deliver them to vehicle crews as needed.

Enigma's software is being installed as part of a Marine Corps program to extend the life of the existing LAV fleet to 2015 through improved maintenance and record keeping. Marine Corps officials declined to discuss the deployment of the the technology on the vehicles, which are used to transport soldiers and equipment.

But John Snow, vice president of marketing at Enigma, said the software will enable a typical three-man LAV crew to do maintenance work by using a visual guide on a laptop PC or other computing device. The guide will include repair instructions that can be tailored to the mechanical skills of individual end users, he added.

The Marine Corps hopes to start rolling out the software early next year, Snow said. The project includes the use of content from about 18,000 pages of LAV documentation, including 70 manuals and parts catalogs.

The cost of the multiyear deal will be in the "high six figures," according to Enigma. In addition to having the software installed, many of the existing LAVs will be upgraded with new sensors that can monitor vehicle functions and transmit data to diagnostic systems.

Pricing for the Enigma 3C Platform starts at $200,000. Snow said Enigma also markets the software to corporate users, such as process manufacturers and utilities, for managing maintenance of vehicle fleets.

Marc McCluskey, an analyst at AMR Research Inc. in Boston, said software like Enigma's can help simplify the process of maintaining and repairing critical equipment. "It provides you with a way to get access to the [maintenance] information very quickly," he said. "Things break, and you want to be able to get them back quickly."

*Trends in Proprietary Information Loss Survey (ASIS 2002) ©2003 Sharp Electronics Corporation

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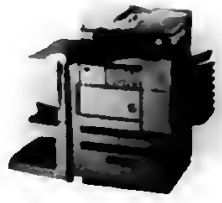

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MARYFRAN JOHNSON

Riding the Offshore Wave

WRITING A PRACTICAL, resource-rich Offshore Buyer's Guide on outsourcing is asking for trouble these days. By devoting so much of this issue to offshoring (with stories starting on page 25

and additional exclusives online at QuickLink a3600), we're priming the pump for a flood of angry e-mails from unemployed programmers, software engineers and other IT workers who are experiencing firsthand the frightening downside of what Gartner calls an "irreversible megatrend."

But our sympathy for their plight doesn't make a dent in the reality that most CIOs and senior IT managers face today. Their painful paradox is having to cut IT costs while stepping up services or delivering better business capabilities. Offshore outsourcing is how they're doing it, regardless of how politically unpopular or career-wrenching it may be.

Our industry is caught in the powerful undertow of a worldwide industrialization of IT, where some once highly prized software skills are now commoditized and where standardized transactions can be easily processed on a global basis. Ignoring low-cost labor for high-quality work is impossible. Sheerly technical skills were once the most prized assets in IT, but the game has moved on to those with business process analysis and project management skills.

Yet in talking with executives who are involved in offshore projects, I've never encountered one who didn't go reluctantly into the decision. Or one who wasn't justifiably worried about job losses, language barriers, security problems and loss of control.

Instead of lamenting the harsh realities, we're opting with this report to help manage the change. It's a complex and risky business, this global juggling of IT projects. It's also a fiercely competitive market and more than a little overwhelming for many organizations. By producing a country-by-country guide to outsourcing strengths and weaknesses, we hope to fill in a huge gap of vital information about taking IT offshore, whether you're considering software engineering in India (the undisputed leader at the moment) or eyeing the numerous other nations that are positioning themselves to snag some of the U.S.'s offshore dollars.

Our report focuses on 11 countries, ranking the leading offshore contenders by level of technical skill, political stability and network infrastructure. It provides on-the-ground experiences from IT managers who've succeeded at offshoring despite the obstacles. There are frank assessments of which countries provide the most comfortable cultural experience for Americans (Canada and Ireland) vs. those with the cheapest labor (Vietnam, Mexico or China). We also analyze a number of emerging trends, such as "multisourcing" (hiring outsourcers in numerous countries) and "daisy-chaining" (subcontracting pieces of an offshore outsourcing contract to even cheaper locales).

The research backbone of our report comes from an in-depth survey of 252 senior IT managers on outsourcing and offshoring practices. We conducted the survey in the spring with Interunity Group Inc. in Concord, Mass. The results confirmed some things we already knew (that cost savings are still the major reason to outsource) but also turned up some surprises, like the fact that cost savings rarely if ever hit those estimates of 60% or 70% we hear, but more realistically average 20% to 30% per project.

When offshore outsourcing projects are successful, and when relationships with outsourcers grow into real partnerships, the managers who dreaded the move end up wishing they'd started sooner. They see the money saved on software engineering costs moving to other IT initiatives, enabling new business opportunities and innovation. And none of that, by the way, can be outsourced. ◗

PIMM FOX

Software's Problem: Training

SOFTWARE IS GREAT. Robust CRM systems. Comprehensive ERP installations. Too bad the stuff hardly ever gets used properly. IT departments (and *Computerworld*'s Shark Tank) are full of tales of complicated application suites gone awry with confusing interfaces exacerbated by inadequate training. It all makes that last mile of software use a lonely, expensive road littered with discarded, ponderous PowerPoint-style tutorials.

But there's a better way to educate users on how best to exploit the programming available at their fingertips: Create simple tutorials using Viewlet. Developed by San Jose-based Qarbon Co., Viewlet is a small, downloadable tool kit that lets anyone with rudimentary computer skills create a set of walk-throughs that can be displayed as a Flash file. Viewlets use screenshots, balloon messages, graphic images and custom text to explain such things as how software works and where to enter data, and it can even document workflow.

Hewlett-Packard uses Viewlets for its SAP training. It claims that they've slashed ongoing support costs for the ERP application by 80%. And Honeywell International uses the tool to develop tutorials for its knowledge management system, eliminating its application support costs altogether.

With Viewlets, you can insert background slides or new items (without having to redo the entire presentation as in, say, the WebEx online service), take screenshots of any software, import items from other demos (don't you love things that are reusable?) and change the tempo of the presentation. Sony uses the product to teach people online how to enter text into their Clie handhelds. And Home Depot adopted Viewlets to train its call center staff.

Viewlets can also help you show nontech types how software actually

White Paper

Business Intelligence Success is Never an Accident

atre

COMPUTERWORLD

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Business Intelligence Success is Never an Accident

In today's highly competitive economy, the ability of an enterprise to efficiently implement Business Intelligence systems in a timely manner will have a significant impact on its success, longevity or even survival! With the right methodologies, architectures and technologies, enterprises can win big with BI.

Written by
Shaku Atre
President
Atre Group Inc.

BI has a distinct meaning for every business. Therefore, every organization must identify its unique requirements for BI to achieve competitive advantage. However, prior to embarking on a BI initiative, an organization should create a strategic vision for success as well as strategies for implementing the BI vision, managing risks and justifying cost. All tangible and intangible business benefits should also be considered with a conscious disregard for technology drivers.

Many organizations are already equipped to implement such BI applications as monitoring key performance indicators (KPIs), balanced scorecards, executive dashboards, information stores, and querying and reporting tools, as well as other analytic applications. However, they seldom follow a BI centric development approach. Therefore, most fail to identify some common business and technical differences between conventional systems and BI applications. To run a successful BI project, project leaders and executives should:

- Avoid costly mistakes by knowing how BI applications differ from traditional ones
- Architect the BI application as a cross organizational, multidimensional querying and reporting system
- Either follow the development phases in this paper, or implement a proven methodology used in their organization

The Atre Methodology: A comprehensive BI development approach

Almost all BI application development projects go through six phases from inception to implementation. However, unlike conventional applications, BI must continually evolve with changing business and market conditions. As a result, BI implementation is not a linear process. Figure 1 illustrates:

Phase 1: Justification: Creating BI vision & strategies and analyzing ROI

Phase 2: Planning, designing and building the BI infrastructure

Phase 3: Designing, building and managing historical and operational information stores

Phase 4: Information retrieval and reporting by leveraging off the shelf enterprise software

Phase 5: Data visualization, prediction and presentation by leveraging customized solutions

Phase 6: Managing and enhancing BI applications and infrastructure

Phase 1: Justification: Creating BI vision & strategies and analyzing ROI

Business case assessment is the main activity in this phase. Because BI initiatives are expensive, organizations considering them need both a strategy and a well defined return on investment target.

Identifying strategic business goals is the first step. Business users from different departments should be solicited for requirements. IT involvement should be limited to coordination and technical assistance.

Business case justification is usu

ally composed of four processes.

1. Business and market analysis. It's important to know where the industry is today and where it's going. Learning more about the competition will teach you a lot about your own business. Answering the following questions will teach you a great deal.

Have your current products and services been influenced by your competition? Imagine there's no competition. Would you do things the same way, or differently? Are you doing things today in the same manner as in the past years? What types of competitors do you face? (They may be based on reputation, image or price, but they may also be innovation or service based.)

2. Identifying business drivers and sponsors. These include your strategic business goals and BI objectives. Without strong business drivers, sponsors and strategic direction, a BI project will likely fail. IT and business users are often tempted to invent business cases that don't exist in order to quickly finish this activity. Avoid this by demanding that business users substantiate their drivers.

3. Risk assessment and mitigation. Risks should be assessed for the six variables listed in Figure 2, which shows a risk assessment matrix for each variable.

You must address a host of questions in order to analyze the risks to your BI project. When considering technology risk, consider: How mature are the selected technologies within the marketplace? How mature are the selected technologies within the organization? How many different technologies will co-exist? Do we have incompatible operating systems? Do we have incompatible DBMSs?

When addressing complexity risk, answer these questions: How complex is the overall IT environment? How complex is the BI application itself? How extensively will workflow have to change? Will it have to be completely reengineered? How many physical sites will be supported? How far apart are they? What types of political systems are in them? What is the degree of distribution of data, processes and controls?

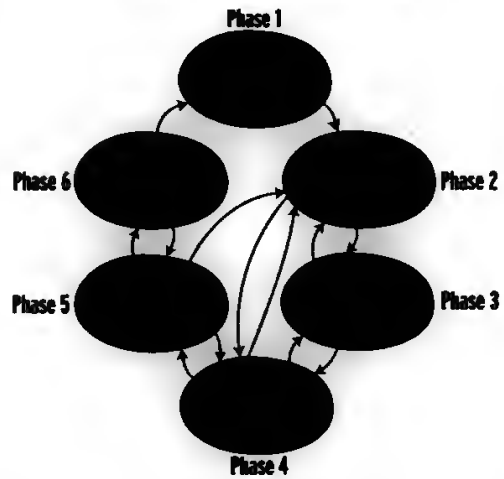
Where integration risk is concerned, key questions include: How many interfaces will the application have? Are there external interfaces? How much source data redundancy exists? How severe is the dirty data? Are there incompatible standards? No standards?

Organizational risk raises its own set of queries. What is management's risk tolerance? How much risk will IT management tolerate? How much financial and moral support can we expect when the project encounters hurdles?

When addressing project team risk, ask: How much experience does the team have with successful BI implementations? How well balanced is the team? Do team members' skills cover all the basic disciplines? How is morale? Will the business representative be an active player? How strong is the project manager?

Finally, when considering financial risk, ask: How fast can ROI be

Figure 1 **BI Application Development Phases**



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expected? How likely is it that the costs will outweigh the benefits? Can financial risk be mitigated by using only proven technologies?

Once risks have been identified, you must come up with techniques and plans to track and mitigate them on an ongoing basis. *This is not a one time only exercise.*

4 Cost/benefit analysis, cost reduction and benefit increase. BI projects are considered difficult to cost justify. That can be true if there's no obvious business problem to solve. One difficult aspect of building a business case is showing strong ROI. Nevertheless, one must demonstrate how the organization can more effectively maneuver and adapt to an increasingly changing marketplace.

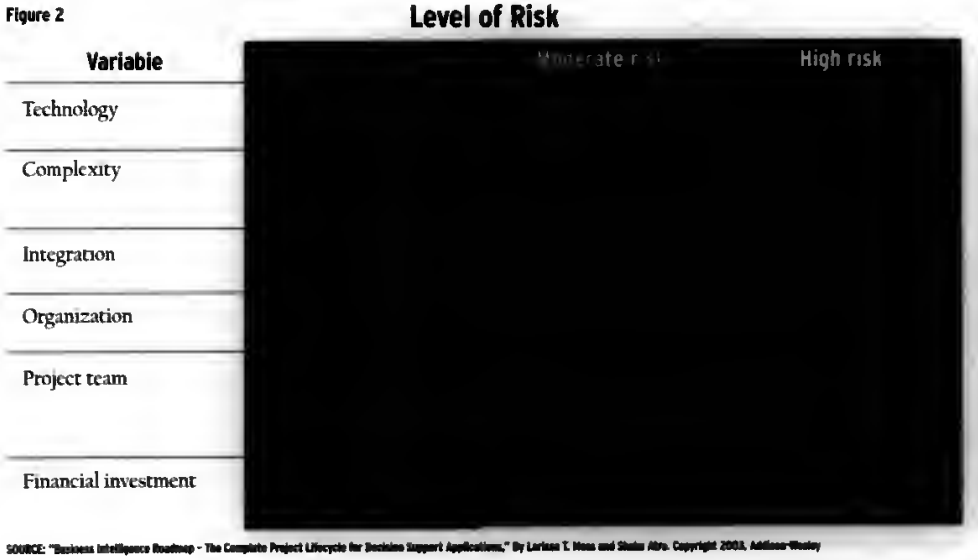
Benefits are usually harder to quantify than costs, and it takes many high value benefits to offset the costs. One effective way to justify BI expenditure is to tie it directly to measurable business problems. For example, assume an organization is losing $5 million each year because it cannot curb insurance fraud due to insufficient and unreliable data about its underwriting practices. If the proposed BI application can resolve that problem, it will be relatively easy to justify. Be as detailed as possible when identifying benefits, even if it's difficult to quantify a precise ROI.

The cost/benefit analysis should state how the BI application would solve a business problem or enable a business opportunity. It should also state what type of information will be available, how that information can be used to make better business decisions and when and how the information will be presented. Once the business needs and benefits have been stated, the next step is to estimate and compare the detailed costs to produce the projected ROI.

There are several categories of BI benefits. In order to be justifiable, your BI decision support initiative should fulfill at least one.

The first category is **increased revenue**. This may take the form of identification of new markets and niches, more effective suggestive selling, faster opportunity recognition, or faster time to market. Another category is **increased profit**, including possibilities for better targeted promotional mailings, early warnings of declining markets, identification of under-performing product lines and internal inefficiencies, more efficient merchandise management through

Figure 2



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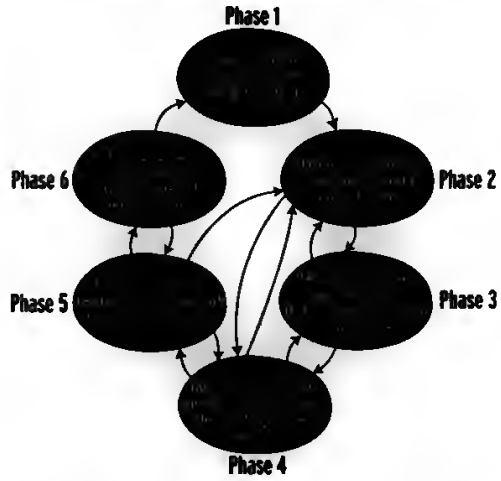

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volume purchases, and better retention of profitable customers (and the phasing out of loss leading ones).

Another category is **customer satisfaction improvement**, which may include an improved understanding of customer preferences, better customer to product matching, increased one on one marketing, more repeat business, faster resolution of customer complaints, and special treatment for top customers.

Finally, BI may help you achieve **savings increases**, through reductions in both wasted merchandise and requests for customized reporting, and **market share gains**, through both an increase in customers defecting from the competition and a dramatic improvement in your own customer retention rates.

If you executed all the activities in Phase 1, you should have the following deliverables:

- A BI vision as well as a mission statement
- Clearly articulated project objectives
- A map of BI objectives to organizational goals
- A value proposition
- Documented balanced scorecards, KPIs and a risk mitigation plan
- Next steps defining how the project will be planned, delivered and managed.

Phase 2: Planning, designing and building the BI infrastructure

Better decisions are made when knowledge workers can securely and easily access operational legacy data as well as current transactional data. To achieve this, you should create an infrastructure that allows access to legacy systems, as well as security and disaster recovery planning. The infrastructure should support search capabilities for both structured and unstructured data. Begin your collaboration activities through enterprise portals, as well as content and knowledge management initiatives.

An enterprise infrastructure is to BI applications what a transportation infrastructure is to automobiles. Without the proper infrastructure and global understanding of the infrastructure rules, BI applications would be of no use.

Better decisions are made when workers can access both operational and transactional data.

The enterprise infrastructure consists of both technical and non-technical infrastructures. During this phase, you'll need to address both, as discussed below.

First, you'll undertake a technical infrastructure evaluation. Activities here require the IT department to do the following:

Assess existing platforms. The existing infrastructure must be evaluated before you decide on acquiring new components. You must also ensure compatibility with existing legacy systems. Your entire arsenal of IT must be planned, integrated, designed and implemented.

Evaluate and select new products. You must decide what new hardware, software or networking components to acquire. If the existing hardware platform appears to be sufficient, determine that it will provide the scalability and performance BI applications demand. Be sure to engage business representatives and stakeholders in the decision-making.

Create a technical infrastructure report. Compile all findings about the existing platform into a report. Explain the strengths and weaknesses of current hardware, middleware and DBMS tools, and list additional components you'll need.

Expand the current platform. Once you've determined which new products to acquire, you can begin evaluating, selecting, ordering, installing and testing them.

Next, tackle a non technical infrastructure evaluation, which involves the following:

Assess non-technical infrastructure components. An organization needs to create a non technical infrastructure to prevent the BI decision support environment from becoming as fragmented as the operational and existing decision support environments—from which cross organizational questions cannot be answeted. The policies, procedures, guidelines and standards, which are all part of the non technical enterprise infrastructure, exist to assist in the coordination and management of the BI environment.

Enterprise infrastructure activities, technical as well as non-technical, are strategic and cross-organizational. An enterprise architecture is comprised of a set of models of the

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organization in terms of business functions, business processes and business data. Enterprise architecture models describe the actual business in which the organization engages.

A fully documented enterprise architecture includes at least five architectural components: a business function model; a business process model, which shows how the organization performs its business functions; a business data model (also called the "enterprise logical data model" or "enterprise information architecture"), which depicts what data is part of the organization's business activities; an application inventory; and a meta data repository, which includes descriptive details about the models.

Create a non-technical infrastructure assessment report. This report documents deficiencies in the existing non-technical infrastructure, as well as proposed improvements. It should cover search capabilities, collaboration, knowledge management tools and security, each of which is discussed in this section.

First, search capabilities. When evaluating search engines, pay attention to their ability to support cross-platform searches, index management, how many retrieval modes they support, and their integration with different knowledge-base, content management and portal products or standards.

Collaboration should also be included in your report. Keep in mind that collaboration isn't limited to departments; it requires integration of knowledge about customers, competitors, market conditions, vendors, partners, products and employees.

Today, businesses are using portals and content management for collaboration. Enterprise portals offer an easy, informal way to centralize and share information. They help users make better business decisions, regardless of where the data they need to make those decisions resides. This requires comprehensive search capabilities and the ability to manage large volumes of information across a great number of data stores.

The other collaboration tool of choice, content management, shep

Figure 3 **Content Management Capabilities**

Capability	Description
Business user productivity	The tool must allow the business users to create, publish and manage their own Web content by means of an Internet browser or a word processor. This will let business users realize the full potential of the corporate Web site by using it as a tool for communication with customers, partners and coworkers.
Customer and partner satisfaction	Managed workflow, content scheduling, archiving and centralized control over publishing standards result in Web sites that are richer with more accurate, timely and easy-to-find content.
Low total cost of ownership (TCO)	By empowering business users to manage their own content, the tool frees expensive IT resources from being ad hoc content managers. This results in reduced support costs and allows redeployment of resources to address critical business needs.
Scalability and reliability	Content management tools must scale to meet future needs.
Interoperability	The tools must support XML Web services and other open standards to achieve seamless interoperability with the rest of the current and future organization.

If the incompatible **data** you have all over the enterprise isn't credible how can you be?

These days, you are your information. And having information that's less than accurate is simply no longer acceptable. Yet with incompatible data sources and volume multiplying, how can you possibly bring all of your data together and come up with a timely and relevant assessment of your business you can trust? The answer is Informatica®. We can transform your disparate enterprise data—regardless of source or application—into a single, manageable, and scalable resource that delivers business insight that is easy to use, reliable and auditable. To learn why over 80% of the Fortune 100 have turned to our unified data integration and business intelligence solution, just call 800-970-1179, or visit us online at www.informatica.com. Because if you're only as good as your data, this is how to always be at your very best.

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herds content from creation through delivery and reuse. Content management tools add consistency to management practices. A BI strategy must include a content or information architecture that addresses the need to store content for easy access — through multiple channels and departments. Figure 3 illustrates content management capabilities.

Your non-technical infrastructure assessment must also explore knowledge management tools which help organizations capture and retrieve their human experiences and knowledge. Knowledge management functions include discovering knowledge, analyzing discovered knowledge, categorizing knowledge, retrieving knowledge in a consistent and objective manner, and sharing knowledge within and outside the enterprise.

Your business most valuable asset — knowledge — is housed primarily in employees heads. You stand to lose this asset unless you identify, collect, store and enhance knowledge in a consistent manner. Proper processes and tools must be used to allow employees to automatically identify the knowledge.

The final component of the assessment is security, which is often overlooked in BI projects. Too many enterprises fail to realize the criticality of the information stored and managed in BI applications — its unauthorized use by employees, competitors or hackers can be disastrous. While architecting BI applications, you must include requirements for authentication and authorization to ensure only authorized users gain access.

Improve the non-technical infrastructure. In the project plan, provide time estimates for modifying or improving non-technical infrastructure components, as well as for establishing new components.

The activities in Phase 2 should result in the following deliverables:

- Design and implementation of required infrastructure.
- Creation and expansion of the physical network.
- Deployment of security requirements.
- Rollout of enterprise portals, content management solutions and knowledge management systems.

Phase 3: Designing, building and managing historical and operational information stores

BI lets organizations make informed decisions by performing trend analysis, forecasting, data mining and statistical exploration of information stores. These information stores can provide snapshots of performance for different time periods and can help enterprises perform tactical and strategic analysis. Better understanding of data helps knowledge workers and executives make action-oriented decisions that impact the bottom line.

Here we list the activities you'll need to perform to effectively leverage this information.

Determine data requirements of knowledge workers and decision makers. This involves defining analysis issues which are often missing due to a lack of understanding of business performance and information needs, as well as relationships between disparate data sources. The quality of the data also creates a challenge. During the justification phase, the objectives and expected results of the business analysis activities must be clearly stated. The expected results then help determine the information needs and data sources for driving the BI applications.

Three types of data sources should be considered. Operational data stores contain data related to OLTP and batch systems like finance, logistics, sales, billing and human resources. Private data stores hold departmental data stored in spreadsheets and documents, as well as desktop-level databases. External

An internationally renowned expert in business intelligence, data warehousing and databases, Shaku Atre is president of Atre Group Inc. in Santa Cruz, California.

Previously, Atre was a partner with PriceWaterhouseCoopers and worked at IBM for 14 years. Atre's award-winning book on database management systems, "Data Base: Structured Techniques for Design, Performance and Management" (John Wiley and Sons, New York), has become a classic on the subject. Her most recent book is "Business Intelligence Roadmap - The Complete Project Lifecycle for Decision-Support Applications," by Larissa T. Moss and Shaku Atre (Addison-Wesley).

herds content from creation through delivery and reuse. Content management tools add consistency to management practices. A BI strategy must include a content or information architecture that addresses the need to store content for easy access — through multiple channels and departments. Figure 3 illustrates content management capabilities.

Your non-technical infrastructure assessment must also explore knowledge management tools, which help organizations capture and retrieve their human experiences and knowledge. Knowledge management functions include discovering knowledge, analyzing discovered knowledge, categorizing knowledge, retrieving knowledge in a consistent and objective manner; and sharing knowledge within and outside the enterprise.

Your business' most valuable asset — knowledge — is housed primarily in employees' heads. You stand to lose this asset unless you identify, collect, store and enhance knowledge in a consistent manner. Proper processes and tools must be used to allow employees to automatically identify the knowledge.

The final component of the assessment is security, which is often overlooked in BI projects. Too many enterprises fail to realize the criticality of the information stored and managed in BI applications — its unauthorized use by employees, competitors or hackers can be disastrous. While architecting BI applications, you must include requirements for authentication and authorization to ensure only authorized users gain access.

Improve the non-technical infrastructure. In the project plan, provide time estimates for modifying or improving non-technical infrastructure components, as well as for establishing new components.

The activities in Phase 2 should result in the following deliverables:

- Design and implementation of required infrastructure
- Creation and expansion of the physical network
- Deployment of security requirements
- Rollout of enterprise portals, content management solutions and knowledge management systems

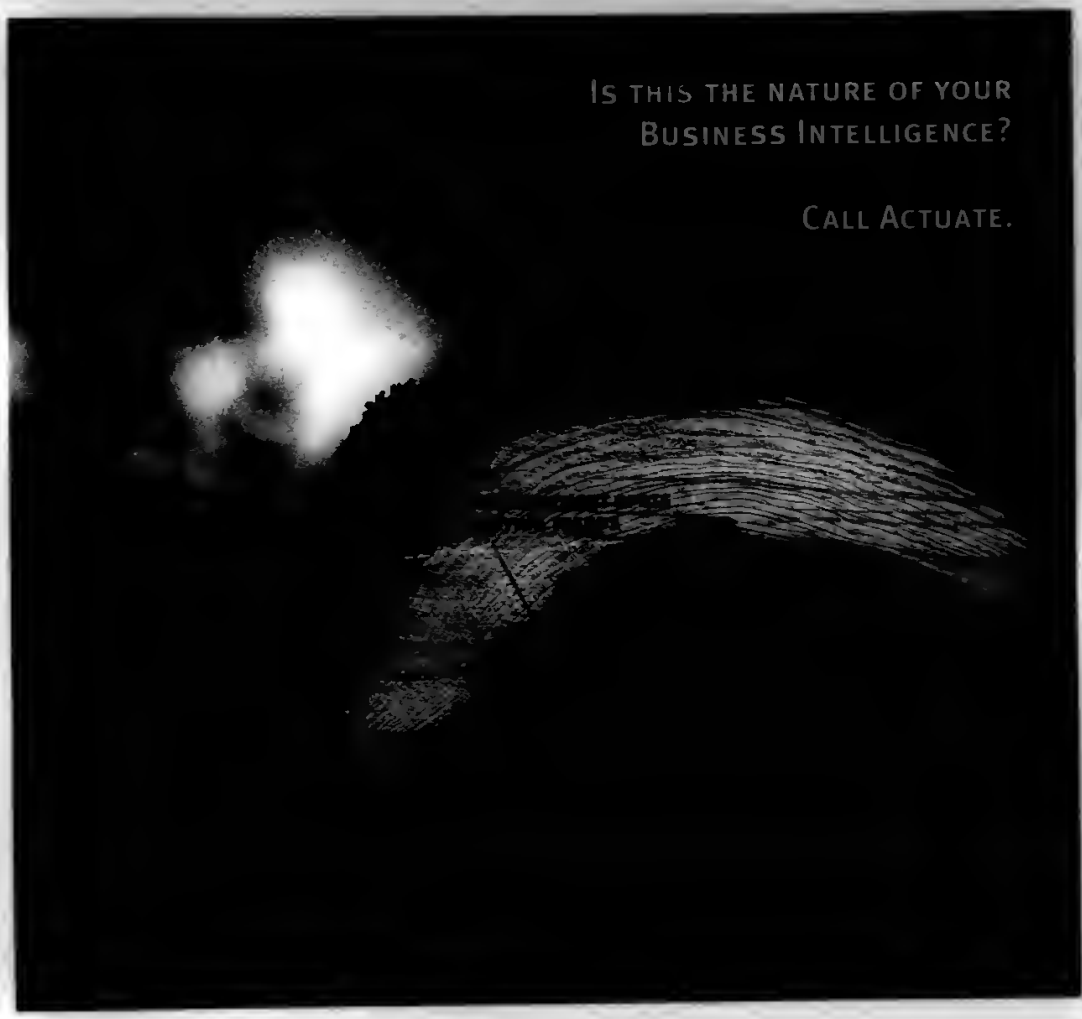
Phase 3: Designing, building and managing historical and operational information stores

BI lets organizations make informed decisions by performing trend analysis, forecasting, data mining and statistical exploitation of information stores. These information stores can provide snapshots of performance for different time periods and can help enterprises perform tactical and strategic analysis. Better understanding of data helps knowledge workers and executives make action-oriented decisions that impact the bottom line.

Here we list the activities you'll need to perform to effectively leverage this information.

Determine data requirements of knowledge workers and decision makers. This involves defining analysis issues, which are often missing due to a lack of understanding of business performance and information needs, as well as relationships between disparate data sources. The quality of the data also creates a challenge. During the justification phase, the objectives and expected results of the business analysis activities must be clearly stated. The expected results then help determine the information needs and data sources for driving the BI applications.

Three types of data sources should be considered. Operational data stores contain data related to OLTP and batch systems like finance, logistics, sales, billing and human resources. Private data stores hold departmental data stored in spreadsheets and documents, as well as desktop-level databases. External



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data stores provide data such as purchased market research reports, sales survey results, customer profiles and demographic profiles

Validation and integration of these data stores usually raise several issues and should be analyzed during business case assessment

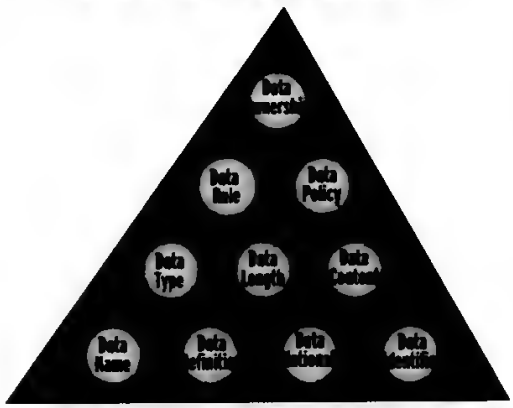
Assess operational sources and procedures. While assessing current decision support solutions, pay attention to operational data, processes and procedures Business problems may exist because executives cannot trust the information they receive, data quality problems may be the result of poor data entry, lack of edits, defective code or nonexistent training Solving the business problem may be as simple as correcting those processes and procedures

Various sources of data must be considered First, there's operational data from OLTP and batch systems Financial, logistics, sales, order entry, human resource, accounting, research/engineering, support and quality assurance systems all fall into this category

In addition, there are private data (departmental information, usually from desktops) and external data (usually purchased from vendors that collect industry specific information available in the public domain)

Perform information and data modeling. The activities performed during data analysis help you understand and correct existing discrepancies in the business data, irrespective of any system design implementation method. Data analysis is therefore a business-, not system-focused, activity. A logical data model must be created and this requires standardized business meta data.

Figure 4 **Business Meta Data Components**



SOURCE: "Business Intelligence Roadmap – The Complete Project Lifecycle for Decision Support Applications," By Larissa T. Moss and Shaku Atre. Copyright 2003, Addison-Wesley

A logical data model, representing a single cross organizational business view of the data, is comprised of an Entity Relationship diagram and supporting business meta data. This meta data includes information about business data objects, their data elements and the relationships among them A common subset of business meta data components as they apply to data (as opposed to processes) appears in Figure 4

Each critical data element must be examined for defects, and you must decide whether and how to correct them. One common BI application goal is to deliver clean, integrated, reconciled data. Poor-quality data is such an overwhelming problem that most organizations cannot correct all the discrepancies. When selecting the data for the BI application, consider the general steps. First, data must be identified, then its content analyzed, next, you select the data that will be used, prepare data-cleansing specifications, and finally you select the tools you'll use

The most effective technique for discovering and documenting the single cross organizationally integrated and reconciled view of the business data is the entity relationship model, also known as the logical data model Entity relationship modeling is based on normalization rules, which are applied during both top-down data modeling and bottom up source-data analysis The normalized logical data model yields a formal representation of the data as it exists in the real world — without redundancy or ambiguity. To achieve this, a meta data repository must be built.

Construct the meta data repository. Unlike ordinary databases, a meta data repository doesn't store business data for a business applica-

tion. Instead, it stores contextual information about the business data. Examples of this contextual information include meaning and content, policies that govern the data, its technical attributes, specifications that transform it, and programs that manipulate it.

This information exists in every enterprise, whether it's documented or not. When contextual information is documented, it's known as meta data. And when it's not documented, there's no way everyone in the organization can know it. As a result, businesspeople often create their own business rules, data and processes, not realizing that what they need may already exist.

There are two types of meta data: business and technical (Figure 5).

BI projects generate a great number of meta data components, so it's useful to classify and prioritize them. Meta data components can be sorted into four classifications: ownership, descriptive characteristics, rules and policies, and physical characteristics. Your meta data repository must be able to store all four classifications, as

listed in Figure 6. Meta data repository analysis activities include analyzing repository requirements.

Extract, cleanse, transform and load the data warehouse and operational data stores. Four factors make finishing the ETL process on time a challenge. First, low quality source data means cleansing and transformation take a lot of time. Second, the process is complicated. Third, the time available is short. Fourth, the work is hardly glamorous, as a result, under qualified individuals are often assigned to the project, which leads to a low-quality repository.

Organizations spend close to 40% of their total project time in ETL design, program development and implementation. Most source data for the ETL process comes from current operational systems, though some will be archived historical data. Usually, three sets of ETL programs must be developed to address the initial load, the historical load and incremental loads.

Many tools are available for the ETL process. Some are sophisticated, some simple — but all must be augmented with manual processes. Also, development teams frequently must pre-process some data manually and write extensions to supplement the ETL tool's capabilities.

Manage and enhance the data warehouse. By conservative estimates, the data in a BI environment doubles every two years. As volumes increase, a plan to aggregate and summarize data as it ages is required. Business analysts rarely require the

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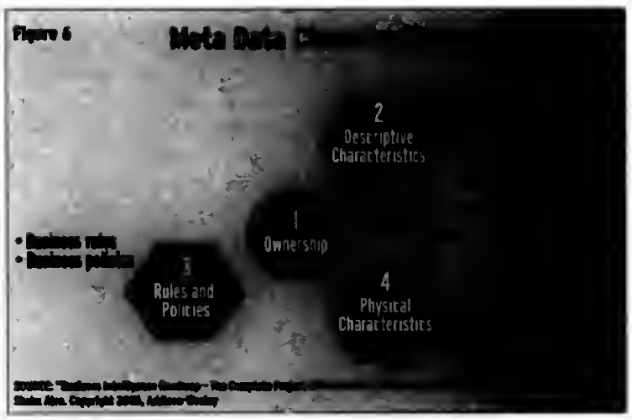

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Figure 5

Business meta data	Technical meta data
Provided by businesspeople	Provided by technicians or tools
Documented in business terms in data models and in data dictionaries	Documented in technical terms in databases, files, programs and tools
Used by businesspeople	Used by technicians, power users, databases, programs and tools
Names fully spelled out in business language	Abbreviated names with special characters, such as "_" (underscore) or "-" (dash), used in databases, files and programs

same level of granularity for very old data as for recent data, so the level of granularity should decrease commensurately.

Another key growth area is usage. The number of businesspeople accessing BI databases can easily double or triple every year, which drives up growth in usage exponentially. Although the data volume is a more critical factor in determining processor requirements, the number of people accessing BI target databases is also important.

The Phase 3 activities should result in the following deliverables.

- Completion of logical and physical data model
- Deployment of physical BI target databases
- Creation of meta data repositories for business and application meta data
- Implementation of data cleansing and scrubbing specifications and processes
- Rollout of ETL tools
- Implementation of enterprise data warehouse, operational data stores, departmental data marts and operational information stores
- Integration of information from external data feeds
- Creation of basic cubes.

Phase 4: Information retrieval and reporting by leveraging off-the-shelf enterprise software

Delivering timely information to executives in a consistent format enables informed decision-making and is a differentiating factor for intelligent businesses.

Avoid deploying in one "mega-swoop"; many key information elements are not clear upfront. Two step deploymeot has become common. In the first step, enterprises leverage existing systems and use off-the-shelf applications for quick deployment in key business areas. They also gain a better understanding of where future effort is required.

Leverage built-in functionality of existing operational systems. These systems hold critical information about customers, suppliers, partners and employees. To retain and grow the customer base, workers need access not only to operational legacy data, but also to current and (when relevant) real-time data. To achieve this, many back office and front-office systems provide querying and reporting functions for accessing their data.

Delivering timely information in a consistent format is a differentiator for intelligent businesses.

To perform analytic activities and make smart decisions, you can leverage the querying and reporting tools built into your existing enterprise resource planning (ERP), customer relationship management (CRM), supply chain management (SCM) and eCommerce systems.

For example, built-in CRM reports can provide decision-makers relevant and time-sensitive client, product or corporate information without forcing them to search through complex back end systems. These reports can provide information on available inventory to salespeople before they commit to a delivery date to help ensure the commitment will be kept. A sales executive can review the sales pipeline and funnel reports to ensure that the quarter's forecast is met.

In the ERP arena, enterprises can optimize the procurement of goods and materials with usage and forecasting reports on inventory and production levels. These reports help you reduce costs and enhance collaboration with key suppliers. Additionally, they provide information on KPIs related to purchasing and distribution. Information presented flexibly according to supplier, product and cost can help your business match products to suitable vendors, resulting in extraordinary savings.

Since these reports often come with back-end systems, they're a cost-effective way to extend operational systems for decision-making.

Deploy off-the-shelf querying and reporting software. In addition to delivering information with existing functionality, most organizations deploy BI applications that provide out-of-the-box querying and analyzing functionality. These applications can access operational systems and other information stores to provide rapid deployment of initial decision-support systems. Managers and executives need direct access to key information before the enterprise goes through a wide-scale deployment.

For example, consider a financial organization that provides other banks and merchants services related

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to credit card use and payment information, in order to aid payment reconciliation and recovery activities. If only paper based reports are provided, the information available will be of limited value.

But if the financial firm implements a Web-based BI application, customers can view, analyze and download information on demand for more informed decision making.

Key Phase 4 activities include:

- Identifying the querying and reporting functions available in operational systems.
- Identifying and evaluating BI products that provide out-of-the-box business analytics.
- Designing and implementing BI applications to achieve objectives for actionable decision-making.

Once you've executed the Phase 4 activities, you'll have the following deliverables:

- Analytic and statistical static reports for executives and managers.
- A report on obvious deficiencies and opportunities in the operational processes, customer demographics and market conditions.

Phase 5: Data visualization, prediction and presentation by leveraging customized solutions

Like OLTP, BI application development is based on the "data out" environment, not on "data in" systems. Therefore, techniques learned while developing operational applications may not be sufficient when deploying a BI application. By using off-the-shelf enterprise software, knowledge workers can use data warehousing systems, queries, reports and information delivered by the BI applications.

However, one size seldom fits all. Usually, it's necessary to customize BI applications for visualization, prediction and presentation. To achieve that, different types of software must be used and customized.

Remember, BI applications cannot be limited to a specific set of users or departments; they must be cross-organizational, enterprise-wide applications. Also, their interfaces must be flexible — the tools serve a large cross-section of users. And BI applications are designed to offer the ability to query data, rather than making data available for input.

Techniques learned while developing operational applications may not apply to BI development.

Application development. Fast, easy access to data for business analysis is one of the main reasons for a BI initiative. A high percentage of that success will be by predefined patterns. In such a pattern, data has been precalculated (derived, aggregated, summarized) and stored in that fashion for faster access. This is the reason for the popularity of multidimensional OLAP tools and is the hallmark of BI decision-support applications.

OLAP tools. Multidimensional OLAP tools are a major component of the BI decision-support tool suite. Terms such as relational OLAP (ROLAP), multidimensional OLAP (MOLAP) and hybrid OLAP (HOLAP) all describe the explosive growth in the field of data access and analysis tools. These terms usually raise expectations of built-in functionality and ease of use.

According to a widely accepted definition, OLAP refers to technology that derives business information through a robust set of business transformations and calculations executed upon existing operational and historical data.

There are two distinct advantages in using OLAP tools. First, the focus in analytical processing is on data — specifically, the multidimensional aspects of the data that are supported by OLAP tools. Business objects are represented as dimensions (e.g., product, customer, department), which are naturally interrelated through functional subject areas (e.g., sales) and are often hierarchical (products roll up into product categories, departments roll up into divisions).

Second, business analysts navigate these dimensions by drilling down, rolling up or drilling across. They can drill down to access detailed data, or roll up to see a summary. They can roll up through hierarchy levels of dimensions or to specific characteristics or columns of the dimensions. They can also drill across dimensions to access the data. In addition, powerful computational services provide functions such as ranks, averages, ROI and currency conversions.

There exists a wide variety of OLAP tools based on different architectures and features. You must know the access and analysis requirements

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of your BI applications to make an informed decision about licensing the right OLAP tools

Customer profiling and customer profitability are popular multidimensional BI applications The dimensions of a customer profitability example are shown in Figure 7 The eight dimensions depicted can be used to achieve a 360 degree view of the customer

Additional examples of complex multidimensional analysis commonly performed in the BI decision-support environment include customer information (buying patterns by product, geography, time, age, gender, number of children, types of cars owned, education level or income level), financial planning (analysis of profit margins, costs of goods sold, tax codes or currency exchange rates), and marketing (impact of promotions and marketing programs, pricing, competitors' initiatives and market trends)

It's important to note that application development activities needn't be performed linearly, some can be performed concurrently

Development environments. The development of vital business applications doesn't happen ad hoc on someone's PC Most enterprises require a structured approach BI application components tend to require a great deal of structure

Usually, enterprises set up development environments for different purposes While smaller businesses may have two environments (development and production), large ones usually have four prototyping, where technology is tested and requirements solidified; development, where programs and scripts are written and tested by developers; quality assurance (QA), where operations staff tests final programs and scripts before moving them to production, and finally production itself

Early prototyping activities (such as creating show-and tell, mock up, proof of concept, visual-design and demo prototypes) typically take place in a special-purpose prototyping environment, while development activities (including operational prototyping) are performed in the development environment But it's also common to do all prototyping and development in the same development environment In either case, the entire BI application should be moved to the QA environment for final testing before it goes into production.

If your different development environments are configured differently, moving your application from one to another may have major implications Prototyping and development environments are usually configured similarly, as are QA and production environments The configuration differences are typically between the development and production environments. You'll need to address some key factors here

For example, even if an application works well in the development environment, there's no guarantee it'll run equally well in the production environment And the cost to move the application from one environment to another could be substantial. In addition, different tools may be required for differently configured environments.

The Web environment. The Web is becoming a popular environment for BI applications Since most OLAP tools are Web-enabled, data from BI target databases is often published

Figure 7 **Multidimensional Customer Profitability**

SOURCE: "Business Intelligence Roadmap - The Complete Project Lifecycle for Decision Support Applications," By Larissa T. Moss and Shaku Atre. Copyright 2003, Addison-Wesley

company wide through an intranet. A subset of that data can also be made available through a separate portal to business partners, or to customers via the Internet.

Special security and authentication measures must be taken in the Web environment. You must ensure that only qualified people can access databases, and all access requests must pass through a firewall.

In addition to being a data delivery platform, the Web can be a source for BI data. Capturing Web logs is a standard practice on Web sites, and the ability to extract, filter, summarize and report the log data for click stream analysis is a popular BI application (dubbed a Web warehouse). Click stream analysis can help identify customer interest, gauge the effectiveness of Internet advertisements and track the results of promotions.

Data mining. Analytical models can be generated to find and exploit patterns in the data. This offers users data that can help them increase revenue and profits, reduce costs, create innovative product strategies and expand market share.

Key Phase 5 activities include the following:

- Determine final project delivery requirements.
- Design, build and test customized BI applications (consider executive dashboards, mobile applications, data mining, predictive analytics and others).
- Prepare the BI application for production.
- Provide training.

With these activities executed, you'll have the following deliverables:

It's essential that you manage a BI environment the same way you would an operational one.

- Multidimensional cubes driven by historical and operational information stores.
- Dynamic querying and reporting systems.
- BI dashboards for executives to run ad hoc queries and get a real-time 360-degree view of the enterprise.
- Mobile application deployment for process optimization and efficient data collection.

Phase 6: Managing and enhancing BI applications and infrastructure

Since business-critical decisions depend on BI, it's essential to manage the environment as you would an operational one. This includes management of systems and help-desk procedures, as well as evaluation of enhancements.

When planning the implementation, use the same iterative approach used when developing the BI applications and the meta data repository. The iterative approach, or incremental rollout, works well because it reduces the risk of exposing defects to the entire enterprise. It also lets you informally demonstrate BI concepts and features to businesspeople who weren't directly involved in the project. Here are some suggestions:

- Start with a small group of business users, consisting of not only power users, but also some less technology savvy knowledge workers (as well as the business representatives who were involved in the development work).
- Treat businesspeople as customers and keep customer care in mind. Trouble-free implementation, interactive training and ongoing support will help you get buy-in.
- Take the opportunity to test your implementation approach. You may consider adjusting this approach, or modifying the application, prior to the full rollout.
- You may have to duplicate implementation activities at multiple sites. Adding these sites slowly over time is easier than launching them all at once.

Note that implementation activities need not be performed linearly; some can be done concurrently.

Growth management. The data in a BI environment doubles every two years. The good news is that the cost per query for most BI environments goes down with properly managed growth. The bad news is that overall cost climbs, assuming more businesspeople use it as time progresses. The three key growth areas to watch are growth in data, growth in usage and growth in hardware.

Growth in data means not only adding new rows to tables, but also expanding BI target databases with additional columns and tables. Adding new columns to a dimension table is not as involved as adding new dimension tables to an existing star or snowflake schema, which usually requires unloading the fact table; adding another foreign key to the fact table; recalculating the facts to a

lower granularity (because of the new dimension), and reloading the table.

BI target databases need lots of disk space, with their workspace and indexes taking up as much as 40% of that space In the relational world, the data is only a fraction of tbe overall database size; a major portion of it is index space. Indexing is required to provide better response time when enormous volumes of data are read.

When calculating space require ments, it's prudent to use the standard maxim: Calculate how large the BI target databases will be (including indexes), then triple the number

Another key growth area is usage This is a good problem to have, successful BI applications often uncover a pent-up need for information throughout the enterprise This translates into more people using BI — and requesting new applications The number of users accessing BI target databases can double or triple every year, increasing usage exponentially And users want to slice and dice the data different ways, which increases data volume.

Technicians tend to view growth in usage as a negative Managers, however, think of it as a positive development — as long as there's ROI. Purchasing or updating hardware to handle the growth may not be a concern if the organization is mak ing a sizable profit due to better decision-making capabilities. Therefore, growth in usage may mean the BI strategy is working.

BI target databases are by nature read-only and grow-only. Therefore, the key is to stop trying to conserve disk space if the applications and data are helping the organization flourish.

Hardware is the third key growth area. If data and usage increase as dis cussed above, it's clear that hardware architecture scalability is vital. But before you plan five years ahead, remember that the hardware cost is only one part of the total. Look at a planning horizon of 12 to 24 months, it's best to start small but also plan for long term growth

One important hardware factor to consider is the capacity threshold of your BI platform If you exceed it, you must add more processors, I/O chan nels, independent disk controllers and other components to keep the environment at an acceptable level of performance

Also, it's vital to remember that the server platform is the most impor tant hardware factor When an enterprise is ordering new hardware of any kind, there must be enough lead time to have the equipment delivered, test ed and prepared. Also, note that parallel technology is an absolute must for Very Large Databases The ability to store data across disks, and to have multiple independent disk con trollers, play a critically important role in BI performance.

Keep in mind that TCP/IP is appropriate for most hardware plat forms, it is rapidly becoming a standard for scalability, growth consider ations and multi-platform environments. Finally, consider the advantages of a data mart approach with separate BI target databases. This permits scalability in smaller, less expensive increments.

If you execute all Phase 6 activities, you'll find yourself with the following deliverables

- A functional help desk
- Fully customized training capabilities
- Functional meta data repositories and program libraries
- Automated ETL processes with automated alert mechanisms
- Operational backup-and-recovery procedures
- A scheduled evaluation of performance levels and metrics
- Documented processes for issue reporting and resolution

Conclusion

Once you've investigated all six BI implementation phases, it's clear that BI deployment is never an accident It requires the project team to have a thorough understanding of the appli cation's complexity and its cross organizational nature. Moreover, the team must cater to knowledge work ers' needs for information on customers, markets and the competition.

To achieve success, your BI project team needs a high degree of innovation and discipline. You can succeed by deploying BI in iterative and incremental phases, all with a strong focus on best practices and their correspon ding methodologies.

Your enterprise's ability to efficiently implement BI systems in a timely manner will not only have a significant impact on your profitability, but also on your very survival.●

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Intimate Relationships in Bloom

1 800-FLOWERS.COM sees revenue hikes after implementing SAS CRM solutions

By marketing convenience in addition to the variety of gifts it sells, 1-800-FLOWERS.COM is always ahead of the competition - maybe even its customers. In a move to expand the business from 14 flower shops in New York City in the 1970s, the retailer's CEO Jim McCann acquired the 1-800-FLOWERS.COM moniker in the 1980s to open his telephone lines for around-the-clock ordering from anywhere in the world.

By 1992, before many companies had even heard of the Internet, 1-800-FLOWERS.COM already had an online presence. McCann initiated full-fledged e-commerce by 1995 in anticipation of the coming Internet boom. And now, in the early 2000s, McCann says 1-800-FLOWERS.COM is once again transforming itself, this time from a company that's based on operational excellence to one that is rooted in intimate knowledge of its customers. 1-800-FLOWERS.COM is achieving that transition with SAS Customer Relationship Management (CRM) Solutions.

"In the early days, our success was based on convenience, reliability and 24-hour-a-day accessibility," says Chris McCann, president and brother of the CEO. "Nowadays, everybody's in the ship-to business, everybody's available 24/7. The foundations of our early success have become a commodity. In order to retain our competitive advantage, we have to migrate toward becoming a customer-intimate company."

Building Solid Relationships

At 1-800-FLOWERS.COM, SAS spans the entire decision-support process for the purpose of managing customer relationships. Collecting data at all customer contact points, the company turns that data into knowledge for understanding and anticipating customer behavior, meeting customer needs, building more profitable customer relationships and gaining a holistic view of a customer's lifetime value.

In short, 1-800-FLOWERS.COM relies on SAS to turn brand loyalty into personal relationships with 10 million customers. Using SAS Enterprise Miner, 1-800-FLOWERS.COM sifts through data to discover trends, explain outcomes and predict results so that the company can increase response rates and identify profitable customers.

"Our rationale for our CRM effort is to build loyalty," Chris McCann explains. He adds that while cross-selling and campaign management are certainly important features, the ultimate goal is to make sure that when a customer wants to buy, he or she continues to buy from 1-800-FLOWERS.COM and cannot be captured by a competitor's marketing. "To build that kind of loyalty, you have to know your customers and build a solid relationship with each one of them," says McCann. "That's where SAS comes in."

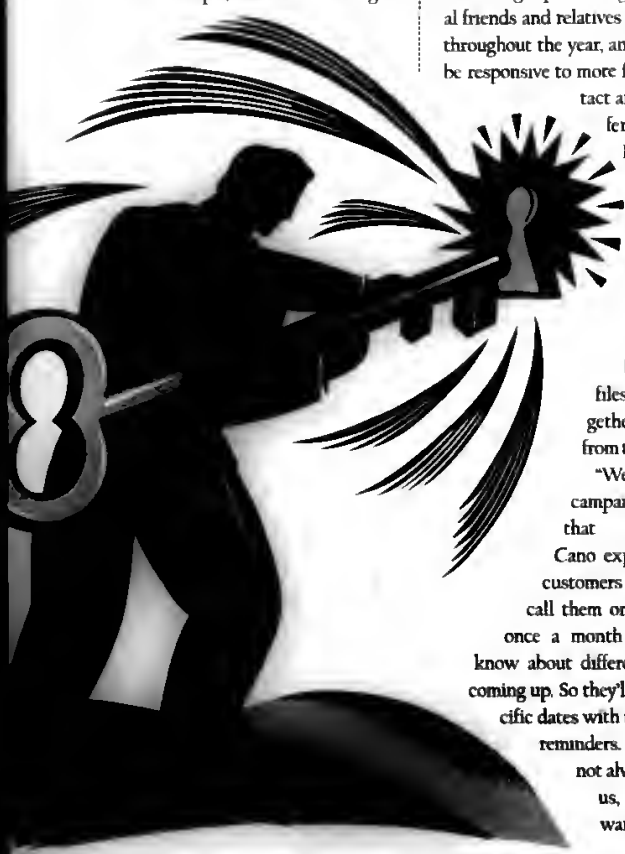
Identifying Each Customer

At 1-800-FLOWERS.COM, successful CRM isn't just about getting customers to buy more. It's about making sure that when they decide to purchase a gift online or by phone, they "don't think of going anywhere else but to you," says Aaron Cano, director of database marketing at 1-800-FLOWERS.COM. "You earn

that loyalty through the quality of relationship you offer them," he adds. "And not every customer wants the same relationship. Some want you to be more involved with them than others, some will give you different levels of permission on how to contact them, for instance. At the end of the day, you have many different customers, and SAS helps us identify who they are and how they would like to be treated."

For example, one customer might shop once a year to purchase roses on Valentine's Day. Odds are, that customer doesn't want any additional marketing contact. Another customer might purchase gifts for several friends and relatives for occasions throughout the year, and thus might be responsive to more frequent contact and special offers. Either way, 1-800-FLOWERS.COM can recommend gifts for individual recipients based on profiles they put together with input from the customer.

"Our rationale for our CRM effort is to build customer loyalty." - Chris McCann, 1-800-FLOWERS.COM



"We plan our campaigns based on that intelligence," Cano explains. "Some customers like for us to call them or e-mail them once a month to let them know about different occasions coming up. So they'll register specific dates with us and ask for reminders. They might not always buy from us, but they do want us to remind them of the occasion, which certainly increases the chances that they will make a purchase."

Such intense focus is paying off — even during a tough economic environment for retail. In the third quarter of fiscal 2003, the company reported revenues of $124.1 million, up 7.5% over the same period in 2002. Online revenues jumped 13.6%.

"Many factors contributed to our recent revenue growth, and our use of SAS is among them," Chris McCann says. "Because SAS is giving us access to better customer information, we've reduced the amount of time we need to spend on the phone with our customers, which makes better use of their time as well as ours. As a result, we're saving money and increasing customer loyalty. In fact, while using SAS, we've increased customer retention by more than 15%."

Bill Carson, vice president of application solutions at 1-800-FLOWERS.COM, says the retailer turned to SAS for CRM after it realized that all the operational data it was collecting offered an enormous amount of strategic value beyond ensuring that transactions worked properly.

"When we began looking at software to use as our primary analytical tool, some of our technology and marketing people were already using SAS," Carson recalls. "Every time we would look at something new, one of those people would say, 'We don't need it. SAS already does that.' Pretty soon, we got the idea. Our internal users of SAS — our power users — were very happy with SAS as a solution provider."

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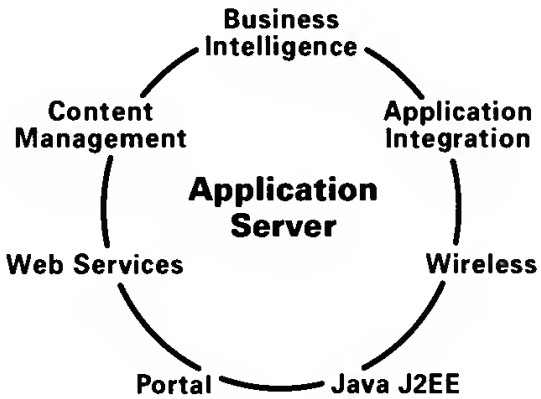

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works, step by step, making your executive presentations a bit easier — and perhaps more successful.

But what I particularly like about Viewlets is that they might help forestall nettlesome problems. For example, if customer support data demonstrates that users have a problem when they reach a certain point in an application, you can design a Viewlet to pop up and help them avoid oft-repeated mistakes. The Viewlet can even direct them to a particular Web site, generate an e-mail or give them an example to prevent a bad user experience.

To get the best use of your software investment, you need highly trained users. Depending solely on vendors' material to train users isn't enough, especially for highly customized programs. Building your own tutorials on the fly with minimal fuss and expense might be the answer.

DAVID MOSCHELLA

Good Things During Bad Times

ONE OF THE great ironies of modern business is that while it's only natural for companies to cut back and be cautious during market downturns, these are also the times when the greatest competitive gains are usually made.

The historical evidence is clear. It's during prolonged slumps that market positions are strengthened and major gains in share are possible. Consider how much stronger companies such as Amazon, Yahoo and Google are now compared with a year or two ago. Boom years are like a steadily rising tide; they lift all but the leakiest of boats, resulting in a false sense of security. But when the inevitable ebb comes, the weaker companies can't keep pace and often disappear entirely.

How does this matter to you? Just about every major economic sector is still in the process of determining whether online market leadership will be largely the preserve of new players, or whether established pre-Internet companies will be able to extend their success into e-commerce domains. In a wide range of industries, what I refer to as value-chain control is at stake.

Consider three examples: iTunes, professional baseball and Orbitz/Opodo. Apple Computer has been able to burst into the music business with iTunes mostly because the established recording industry has been unable to produce online services that customers want to buy. In sharp contrast, Major League Baseball successfully sells its games directly over the Web, bypassing traditional broadcasting partners. Somewhere in between are the major U.S. (Orbitz) and European (Opodo) airlines, which have decided that they shouldn't just concede the online travel reservations business to Expedia, Travelocity and countless other specialists.

Perhaps the most surprising example of the old vs. new dynamic can be found in the world of online payment systems. Over the past 50 years, the banking industry has managed to own and operate just about every important technology-based payment system — credit cards, debit cards, ATMs and the rest. However, thus far, it has missed the opportunity to do this on the Internet. The fact that eBay owns PayPal is a compelling example of a start-up controlling part of the value chain that established banks have traditionally dominated.

Similar dynamics exist in the health care, insurance and automotive industries and many other consumer and business-to-business sectors. The reality is that the long-term online structure (and associated shareholder value) of most industries is still very much up for grabs. However, both business history and current trends suggest that the Internet leaders of tomorrow are much more likely to emerge out of today's troubled times than during the dot-com boom, when far too much emphasis was put on long-disproved first-mover theories.

Today, many CIOs and IT shops are struggling to justify budgets and regain business support. Perhaps a good way to start is to make it clear that the current period remains both more promising and more dangerous than many people think. Restoring a sense of strategic urgency to IT's high-profile projects would go a long way toward restoring the prospects for our business.

When was the last time you asked your business colleagues whether your company is gaining online value-chain control or losing it? With the end of the IT downturn now coming into view, the leadership window is clearly closing. There may never be better opportunities than there are right now.

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READERS' LETTERS

ERP Still Delivers

I WANT TO TO TAKE a moment to dispel the myth that ERP applications and other IT functions no longer provide competitive advantages to the organizations that use them ["Time to Outsource ERP?" QuickLink 40020]. While it's true that installing an off-the-shelf ERP application won't provide a competitive advantage, there are still differences among ERP applications, and installing the wrong one or installing one without the correct configuration can place a company at a competitive disadvantage. Beyond that, competitive advantages are gained by innovating. However, the fallout from the '90s hype has scared many companies away from being innovative.

During recessions, many companies look for ways to cut costs. Traditionally, IT has been leveraged to help reduce other business costs, but the '90s fallout has companies looking squarely at IT as something that can be scaled back. Companies have commoditized IT, so it has become function-based. But technology is about innovation – about finding fresh ways to connect with customers and about expanding the reach of an organization.

If a company wants to cut costs, it can outsource pretty much whatever it wants to as long as it commoditizes it first. But if it wants to use ERP in innovative ways to grow the business, then it's never the right time to outsource it. Outsourcing firms focus on minimizing the cost of delivering a service. In-house employees focus on maximizing returns. I can't tell an individual company what it should do, but I know what I believe in: growing the business.

Wally Garneau
Caledonia, Mich.

Defusing Mac Myth

MICHAEL BARTENBERG'S column "Mac Myths and IT" [QuickLink 40412] was concise and factual. I get rather fed up with the cry that "there's no software for the Mac" from Windows users who use little more than Microsoft Office.

John Davis
Manager, The Pitt School, Sapporo, Japan,
pitt_jd@abox22.so-net.ne.jp

CRM Readiness

THE ARTICLE "CRM: Ready or Not?" [QuickLink 40302] says that a company must have 5,000 customers or more to consider the application of CRM systems. That is just plain wrong.

Very few industrial product suppliers have as many as 5,000 customers. In the electronic OEM business, a rule of thumb is one sales service rep per 100 viable customers. Very large component manufacturers have fewer than 500 paying customers, which means they have only five sales service reps. These large component suppliers have gross sales on the order of $150 million, which means a sales service rep handles $30 million in sales per year, with an average customer value of about $300,000.

Bill Mullin
Consultant, Wild Oats & Co.
North Myrtle Beach, S.C.

SCO's Rights

PERHAPS the silent majority in the IT world is not behind SCO President and CEO Darl McBride, but most businessmen who place a value on intellectual property and the capitalist system probably are. Most of us like to be paid for the value of our efforts. Any company that develops software that provides it with a competitive edge is unlikely to be happy if that information shows up as open-source. If their employees have any sense, they will be unhappy as well.

Mark Stephens
President, The Stephens Group Inc., Charlotte, N.C.

SCO IS CLEARLY WRONG ["SCO's Linux Fight," special coverage page, QuickLink a3260]. It had sold its own Linux distribution with all of the same code that it now claims intellectual property rights to until it saw a way to make a lot of money doing nothing. It's as if I had written a program and told everyone they could have it for free, then two years later said, "OK, now you have to pay me for it."

Dave Blomberg
Systems engineer, Tokyo,
cybersekkin@hotmail.com

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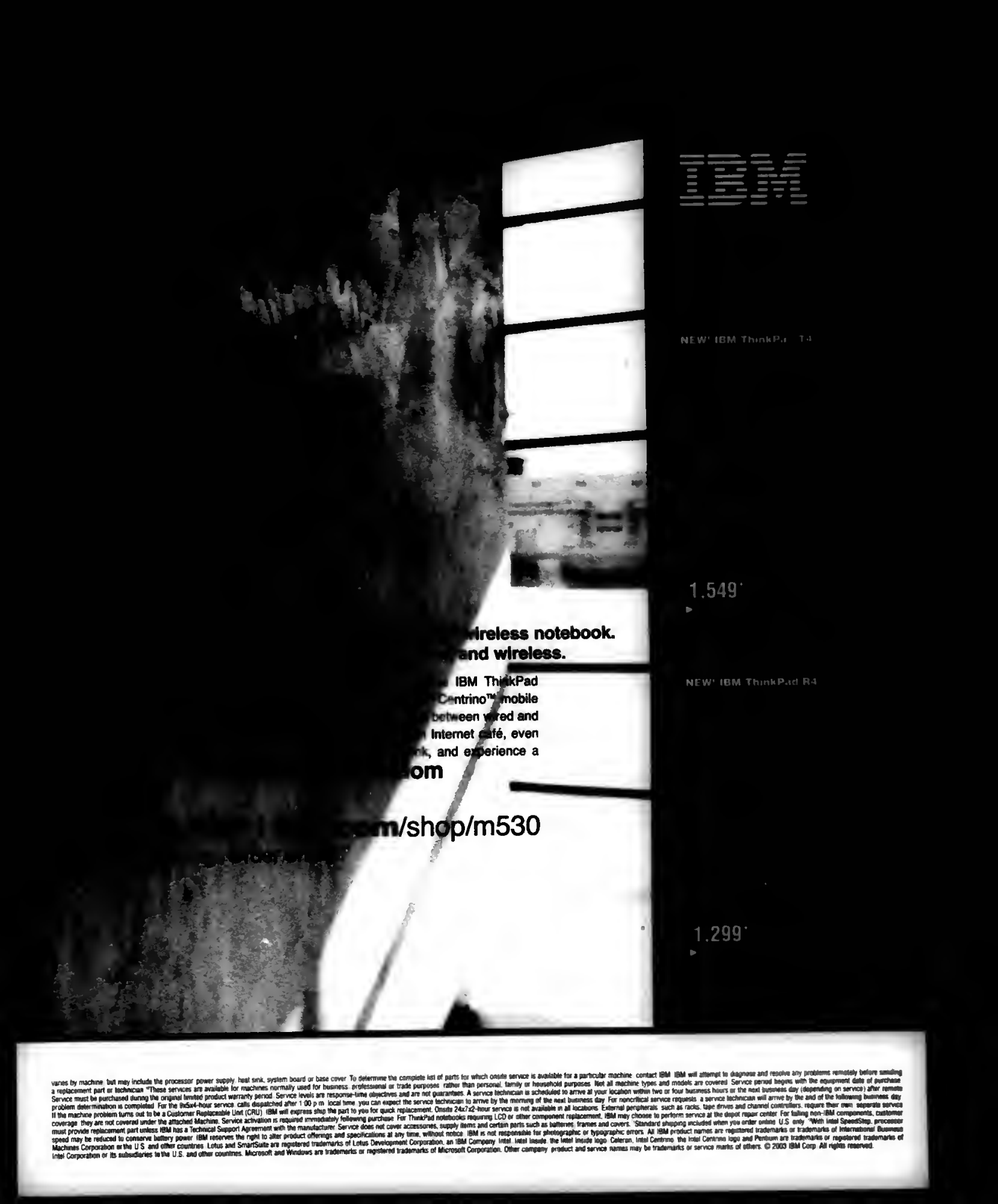

varies by machine but may include the processor power supply heat sink, system board or base cover To determine the complete list of parts for which onsite service is available for a particular machine contact IBM IBM will attempt to diagnose and resolve any problems remotely before sending a replacement part or technician "These services are available for machines normally used for business professional or trade purposes rather than personal, family or household purposes Not all machine types and models are covered Service period begins with the equipment date of purchase Service must be purchased during the original limited product warranty period Service levels are response-time objectives and are not guarantees A service technician is scheduled to arrive at your location within two or four business hours or the next business day (depending on service) after remote problem determination is completed For the 9x5x4-hour service calls dispatched after 1 00 p m local time you can expect the service technician to arrive by the morning of the next business day For noncritical service requests a service technician will arrive by the end of the following business day If the machine problem turns out to be a Customer Replaceable Unit (CRU) IBM will express ship the part to you for quick replacement Onsite 24x7x2-hour service is not available in all locations External peripherals such as racks, tape drives and channel controllers require their own separate service coverage they are not covered under the attached Machine Service activation is required immediately following purchase For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center For failing non-IBM components, customer must provide replacement part unless IBM has a Technical Support Agreement with the manufacturer Service does not cover accessories, supply items and certain parts such as batteries frames and covers 'Standard shipping included when you order online U S only "With Intel SpeedStep, processor speed may be reduced to conserve battery power IBM reserves the right to alter product offerings and specifications at any time, without notice IBM is not responsible for photographic or typographic errors All IBM product names are registered trademarks or trademarks of International Business Machines Corporation or the U S and other countries Lotus and SmartSuite are registered trademarks of Lotus Development Corporation, an IBM Company Intel Intel Inside the Intel Inside logo Celeron, Intel Centrino the Intel Centrino logo and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries. Microsoft and Windows are trademarks or registered trademarks of Microsoft Corporation. Other company product and service names may be trademarks or service marks of others. © 2003 IBM Corp All rights reserved.

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IT's Global Itinerary
CIOs like Kim Ross of Nielsen Media Research (left) are getting marching orders to take some IT operations offshore, in what's called an "irreversible megatrend." But the field is getting more complex, too. Page 26

Selecting the Right Offshore Vehicle
Columnist Bart Perkins says there are different types of offshore outsourcing vendors, and it's wise to pick the type that fits your company's culture, requirements and risk profile. Page 46

Offshore Buyer's Guide

A country-by-country guide to offshore and near-shore IT outsourcing.

EDITOR'S NOTE

I'M PREPARED FOR THE BACKLASH from daring to run a special report on offshore outsourcing. The O-word always triggers a stream of e-mail invective from displaced IT workers.

Of course, I'm sympathetic to the plight of IT workers in the U.S. who get laid off, or worse, have to train their foreign replacements and *then* get laid off. (And, no, I wouldn't like to be replaced by an editor in India who might work at half the cost.) I'm also aware of the security risks of having mission-critical code written by people whose loyalties are unknown.

But the cold, often cruel fact is that offshore outsourcing is an "irreversible megatrend," as a Gartner analyst put it.

CEOs and chief financial officers are demanding it. CIOs are even demanding that their U.S.-based service providers get at least some of the work done offshore to save money.

It's much like the loss of U.S. textile jobs to overseas manufacturers. For years, our shirts, TVs and PCs have been manufactured elsewhere. Now globalization has come to the corporate IT department, too, whether we like it or not.

Welcome to the world of offshore software manufacturing. India is the clear leader by a large margin, but other countries are nipping at its heels, promising lower costs or special advantages. So we've produced a guide to the strengths, weaknesses and risks in 11 countries on the CIO's horizon. Better to know what you're getting into, *n'est-ce pas?*

One trend to watch is "daisy-chaining," in which U.S. vendors farm out work to a firm in India, which then subcontracts parts of the job to even cheaper locations. (Headline of the future: "India's Programmers Protest Outsourcing.")

Eventually, it seems, CIOs will just negotiate a good contract with an outsourcing vendor and let *them* worry about where the work gets done. ▶

Mitch Betts (mitch_betts@computerworld.com) is Features editor at Computerworld.

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IT's Global Itine

WATCH

By next year, 80% of CIOs will have marching orders to take some IT offshore. By Julia King

GLOBALIZATION WILL HIT virtually all large corporate IT departments within the next year. By 2004, eight out of 10 CIOs will have direct marching orders to move offshore at least part of the technology services they provide to their businesses. Four out of 10 companies will already have done so, according to research from Gartner Inc. in Stamford, Conn.

"We see this as an irreversible megatrend," says Gartner analyst Rita Terdiman. The short-term reason: Cost savings that can run as high as 40% are simply too compelling to ignore in today's ecooomy. Moreover, outsourcing helps companies realize longer-term strategic goals to increase IT staffing flexibility and gain access to an expanding base of world-class IT skills, so they can quickly respond to business opportunities. On the financial side, companies want to purge their books of as many fixed IT costs as possible.

"I can't think of a single meeting I've had with a client in the last year without offshore being a topic," says Bob Pryor, wbo heads the global outsourcing practice at Cap Gemini Ernst & Young. "Some users are demanding that as much as 80% of a contract's work be sent offshore."

And just for the record, Gartner research as well as *Computerworld* interviews with more than two dozen CIOs indicate that backlash from IT job losses in the U.S. is having little, if any, effect on companies' outsourcing plans. As one IT director at a multibillion-dollar global electronics company put it, "When the train is coming down the tracks, it doesn't do you any good to stand on them."

But global outsourcing isn't just about getting programmers in India to do routine code-fixing anymore. The field has gotten more complex, with new players, new strategies and oew concerns. Here's a rundown of the latest trends in offshore outsourcing.

1 Multisourcing

Users are increasingly doing business with multiple service providers in different countries, depending oo where they can find the best skills for the best price. This holds true even if a company's primary services provider is one of the large domestic outsourcers, such as IBM Global Services or Accenture Ltd., because those companies are aggressively tapping the offshore pool of IT and business skills. IBM Global Services is India's fifth-largest employer, and in March, Accenture opeoed a facility in Dalian, China, with 100 IT workers to perform applications development and maintenance, systems integration and business process outsourcing.

Electronic Data Systems Corp. currently has about 1,000 IT workers in India and will employ 20,000 workers in other offshore locations by next year. Last year, Plano, Texas-based EDS launched its Best Shore service, which involves sending work offshore to be performed at one or more of its 16 IT facilities in 11 countries.

"Global outsourcing is a $550 billioo industry, yet the top five players doo't command a 20% market share," notes Accenture CEO Joe Forehand. "There's no one provider who is best-of-class across all services," which means multisourcing will only continue to accelerate, he says.

The upshot for IT managers: "Expect a more com-

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plex [outsourcing] environment," cautions John Schmidlin, CIO at J.P. Morgan Chase & Co., which has a $5 billion, seven-year outsourcing contract with IBM. "This stuff is very complicated and intricate."

2 Reshuffling Skills

As applications development and maintenance move offshore, corporate IT departments are rebalancing their mix of in-house skills, de-emphasizing technical acumen in favor of managerial experience and business process knowledge. "The skills you really need in-house are business analysis skills. A business analyst is somebody who understands process mapping, data modeling and system prototyping," says Mike Hugos, CIO at Network Services Co., a $6.8 billion distribution cooperative in Mount Prospect, Ill. The company currently outsources its Web-based order management system to a domestic services provider, but is considering moving other IT services offshore.

In addition, IT architects "who look at new technologies and decide which ones to adopt" are extremely important in an outsourced environment, says Kim Ross, CIO at New York-based Nielsen Media Research Inc., which since 1995 has been outsourcing IT work to Cognizant Technology Solutions Corp., an Indian outsourcer with U.S. headquarters in Teaneck, N.J. "In our outsourcing model, the sequence of activities is that our [in-house] people determine the business need and translate that to requirements," Ross says. "The requirements are then handed over to the outsourcer for implementation."

Contracting, negotiation, compliance monitoring, financial and accounting skills are also critical in an increasingly complex multisourced IT environment, according to Schmidlin. "We spend a lot of time on who's doing what and on whose nickel," he says.

"Our focus this year is to move people in more technical roles into business process roles and to move the more technical work offshore," says an IT manager at a large electronics manufacturer that has outsourced IT support for both mainframe and distributed software applications to offshore service providers. The manager requested anonymity. Internally, the manager says, the emphasis is on developing business account managers who are IT professionals that work with end users to "discover and recommend ways to use IT to improve business processes."

3 Emergence of New Services

According to a June joint study by IDC, an IT market research firm in Framingham, Mass., and TPI, an outsourcing advisory firm in The Woodlands, Texas, 42% of all outsourcing engagements have an offshore component, and this "will continue to spread to new segments and deepen its hold on the industry." Business process outsourcing is the fastest-growing segment of the market, and offshore providers are expected to take on an increasing volume of human resources, call center, finance and accounting functions.

Beyond that, outsourcers are expanding their reach even further with industry-specific offerings. For example, Accenture processes more than 30 million meter readings for the utility industry and 300 million airline reservations annually. Both services are examples of the so-called "industrialization of IT," which is the ability to process certain standardized transactions on a global basis.

Service providers in India, which are especially renowned for their software development discipline, are expanding their services to include consulting and training in software design and development. Bangalore, India-based Wipro Ltd., for example, recently launched a consulting arm that specializes in training companies in the Software Engineering Institute's Capability Maturity Model.

Another fast-growing offshore outsourcing segment is infrastructure services, including desktop support, help desk, and various network monitoring and management functions. That niche now accounts for 80% of Wipro's annual revenue, up from just 1% a few years ago, according to CEO Vivek Paul.

4 Offshore Handoffs

Outsourcers, like users, are also looking to reduce their fixed IT costs. To do so, experts predict, service providers will sell a growing portion of their fixed IT assets back to hardware and software vendors, such as Sun Microsystems Inc. and Dell Inc., then lease those assets to run applications and other services for their enterprise customers. In another so-called daisy-chaining trend, large, mature offshore outsourcing vendors, particularly those in India, are subcontracting IT work to newer, lower-cost market entrants in China, Vietnam and other countries.

Most U.S.-based global outsourcing vendors have also formally partnered with specific offshore providers. For example, Deloitte Consulting in New York has a deal with IGate Corp. in Pittsburgh to provide IT services in India, and EDS partners with Satyam Computer Services Ltd. in Hyderabad, India.

Experts say that user companies looking for the best cost savings must allow outsourcing vendors to perform services in a way that will enable them to achieve the greatest economies of scale. "It should not matter to the user which hardware or software the vendor uses if the user has outsourced the [business] outcome to the outsourcer," says Martin Cole, head of Accenture's outsourcing business.

5 Pricing Ups and Downs

Despite outsourcing experts' repeated advice against basing offshore decisions on cost alone, the reality in today's economy is that cost savings are what motivate many companies' offshore choices. Of 252 senior and corporate IT managers interviewed by *Computerworld* and Concord, Mass.-based InterUnity Group Inc. this spring, 44% ranked reducing and controlling costs as their No. 1 reason for outsourcing to non-U.S. locations.

"The cost savings have to be there," says Nielsen's Ross. "One of our ground rules is to avoid spending more money [than it would cost to do the same work in-house]. We see 20% to 30% savings on projects on the average."

But today's offshore cost savings won't last indefinitely. Increasing demand will inevitably drive up labor costs in mature offshore centers, such as India, where Gartner analyst Partha Iyengar expects demand to outstrip supply within five years.

For now, though, some users are opting to take vendors up on offers of discounts of up to 5% in exchange for lengthening the terms of existing offshore contracts. Still, experts warn that users should be wary of lowest-cost deals. That's because as demand goes up, so will wages, which will drive up offshore vendors' costs. With financial contract terms locked in with users, vendors will have little choice but to decrease service levels to contain their own costs.

The bottom line, according to analysts and CIOs happy with the benefits achieved through outsourcing, is that those companies that haven't done so are missing the boat. Schmidlin says the biggest lesson he learned from offshore outsourcing is that he wished he had done it five years earlier than he did.

SOURCE: COMPUTERWORLD AND INTERUNITY GROUP INC., CONCORD, MASS., APRIL AND MAY 2003

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5 Pricing Ups and Downs

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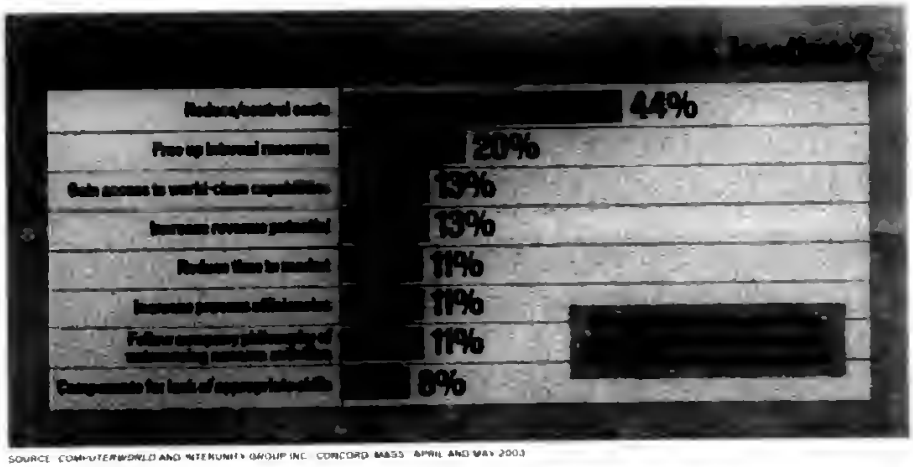
"The cost savings have to be there," says Nielsen's Ross. "One of our ground rules is to avoid spending more money [than it would cost to do the same work in-house]. We see 20% to 30% savings on projects on the average."

But today's offshore cost savings won't last indefinitely. Increasing demand will inevitably drive up labor costs in mature offshore centers, such as India, where Gartner analyst Partha Iyengar expects demand to outstrip supply within five years.

For now, though, some users are opting to take vendors up on offers of discounts of up to 5% in exchange for lengthening the terms of existing offshore contracts. Still, experts warn that users should be wary of lowest-cost deals. That's because as demand goes up, so will wages, which will drive up offshore vendors' costs. With financial contract terms locked in with users, vendors will have little choice but to decrease service levels to contain their own costs.

The bottom line, according to analysts and CIOs happy with the benefits achieved through outsourcing, is that those companies that haven't done so are missing the boat. Schmidlin says the biggest lesson he learned from offshore outsourcing is that he wished he had done it five years earlier than he did. ◗



SOURCE: COMPUTERWORLD AND INTERUNITY GROUP INC., CONCORD, MASS., APRIL AND MAY 2003

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SAMSUNG

Other countries are nipping at its heels, but India remains the premier offshore destination. By Jaikumar Vijayan

India Inc., Still Goi

CHRISTINE JOHNSTON

AN ABUNDANCE of low-cost labor and a reputation for high-quality work will, for the next several years, continue to make India one of the top outsourcing destinations for U.S. companies looking to cut IT development and maintenance costs.

But a lack of industry-specific consulting skills and market presence in the U.S. could limit the appeal of Indian vendors for upstream IT consulting work in the future, observers say.

"India Inc. as a brand has become very visible," says Pavan Kumar Maddali, a vice president at Hyderabad, India-based Satyam Computer Services Ltd. "No vendor needs to have a 'Why India?' slide in their PowerPoint presentations any longer."

Even so, "Indian companies are still positioned primarily as a cost-efficiency play" and not as upstream consultants, says Debashish Sinha, an analyst at Gartner Inc. "Though the top-tier companies are spending a significant amount on branding and marketing, they still don't have the same [name recognition] as the U.S. majors do," he adds.

Satyam and other Indian IT services companies have enjoyed tremendous growth in recent years by delivering cheap labor and quality work. The National Association of Software and Services Companies (Nasscom), India's software trade association, projects that the country's IT services industry will grow nearly 28% this year to more than $12 billion in revenue, at current exchange rates. More than 70% of that revenue will come from U.S. companies, with some contracts exceeding $40 million, according to Nasscom.

Major Indian vendors such as Tata Consultancy Services (TCS), Wipro Ltd. and Infosys Technologies Ltd. routinely sell to Fortune 500 companies, and they are now able to begin competing with IT services giants such as IBM, Electronic Data Systems Corp. and Accenture Ltd.

Despite rising costs and increased competition, India's low-cost labor pool, which has fueled much of this growth, will continue to be a magnet for U.S. companies desperate to shed costs in a down economy, Sinha says.

U.S. firms that outsource to Indian vendors can typically reduce project costs by 50% to 70% compared with doing it at home, says Jim Honerkamp, CIO at Clopay Corp., a $1 billion, Mason, Ohio-based manufacturer of commercial doors.

For less than 30% of what it would pay in the U.S., Clopay is getting Hyderabad-based Sierra Atlantic Inc. to develop and maintain its Oracle Corp. environment. Even projects that require staff to be located at Clopay's U.S. facilities are about 50% cheaper, under the fixed-price contract that Clopay has negotiated with Sierra.

Outsourcing to Sierra has allowed Clopay to double the resources it can bring to bear on a project, even as the number of internal IT employees at the company has dwindled from 95 to 35 over the past couple of years, according to Honerkamp.

"We've been asked to do more with

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less," says Honerkamp, explaining that Clopay's management team has asked him to reduce his budget — or at the very least keep it flat year over year.

"At the same time, our application portfolio has been increasing. The only way to look at this was through an offshore solution," Honerkamp says.

But cost isn't the only reason why outsourcing to Indian companies is an attractive option, insist users and analysts. Companies in countries such as Russia and China have begun offering better rates than Indian companies.

The difference lies in the scalability of major Indian vendors, their strong focus on quality and their experience delivering a wide range of services, says John Blanco, senior vice president at Cablevision Systems Corp. in Bethpage, N.Y.

When it comes to software development and process methodologies, all top-tier Indian vendors are certified at CMM Level 5, which is the highest level on Carnegie Mellon University's Capability Maturity Model. Major Indian vendors have also developed more of a global services delivery capability than their counterparts in other countries.

A $900 million company, Wipro, for instance, has more than 18,000 employees and operates software development centers in the U.S., Canada, the U.K., Germany and Japan. India's largest exporter, $1 billion TCS, employs more than 24,000 people and has nine development centers outside India, including one in China.

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Such attributes were crucial to Cablevision's decision to select two Indian vendors — from an original field of 50 offshore companies in six countries — for an offshore pilot project.

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"India was in a quadrant by itself" in terms of the labor pool, quality levels, process methods and government support for IT initiatives, says Peter Nag, vice president and global program management officer at Lehman.

Under its contracts with Wipro and TCS, Lehman has begun outsourcing several of its applications to India, according to Nag. "Cost is one of the expected benefits but not the primary reason," he says.

For all their success, one area where Indian companies still need to build their capabilities is in upstream IT consulting services, says Rusi Brij, the Jamesburg, N.J.-based CEO of Hexaware Technologies, an offshore software development company based in Mumbai.

Indian companies are strong in software development and maintenance but not so strong at understanding the business needs behind IT projects, Brij says. "Indian vendors typically don't see business users as a client; they see the IT organization as their client," he says.

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In the long term, there are some clouds oo India's horizon.

While the top five Indian companies have been galloping along at growth rates in excess of 25% per year, the vast majority of smaller vendors are struggling along at a much slower pace. The trend could result in a consolidation of the midtier, predicts Gartner's Sinha.

Meanwhile, the growing presence of IBM, EDS and Accenture is putting the squeeze on pure-play Indian vendors. The U.S. companies not only have the ability to lure the best talent away from the Indian majors; they also have deeper pockets and can undercut Indian prices, says Brij. The presence of these companies will also have the effect of increasing salaries across the board, says Satyam's Maddali.

In the short term, the increased competition could mean better prices for U.S. customers. But over the long term, continued pressure on margins could begin to affect service delivery, says Sinha. ▶

India's Challenges

Though India is riding high in the IT offshore outsourcing market, customers say the following challenges should be considered and managed:

- The geographic distance between the U.S. and India increases communication and travel costs, which can erode some of the initial cost benefits, says Cablevision's John Blanco. For instance, it costs $200,000 a year to maintain a 2Mbit/sec. dedicated link between an office in New York and a development center in India – significantly more than the cost of a domestic link, says Lehman Brothers' Peter Nag.

- Time-zone differences "make communication a more deliberate process," says Mark Hebert at Sierra Atlantic. "You really have to think through who's going to stay up late or get up early."

- Cultural and language differences aren't a huge problem but certain issues can crop up. For example, "Indians don't know how to say no. They are very good at saying yes, yes, yes," says Blanco. "Sometimes you might find a functional point or a requirement change because they don't know how to say it can't be done."

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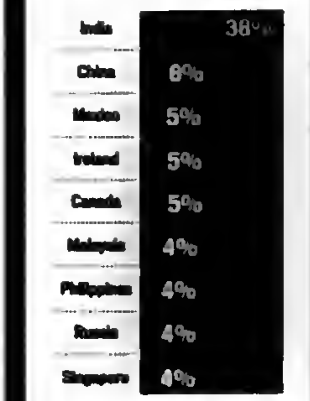

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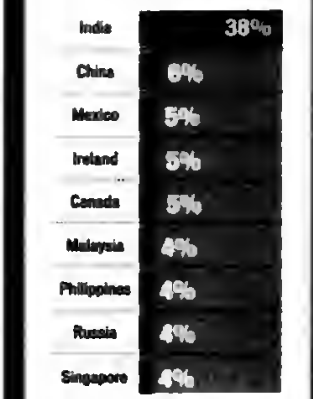

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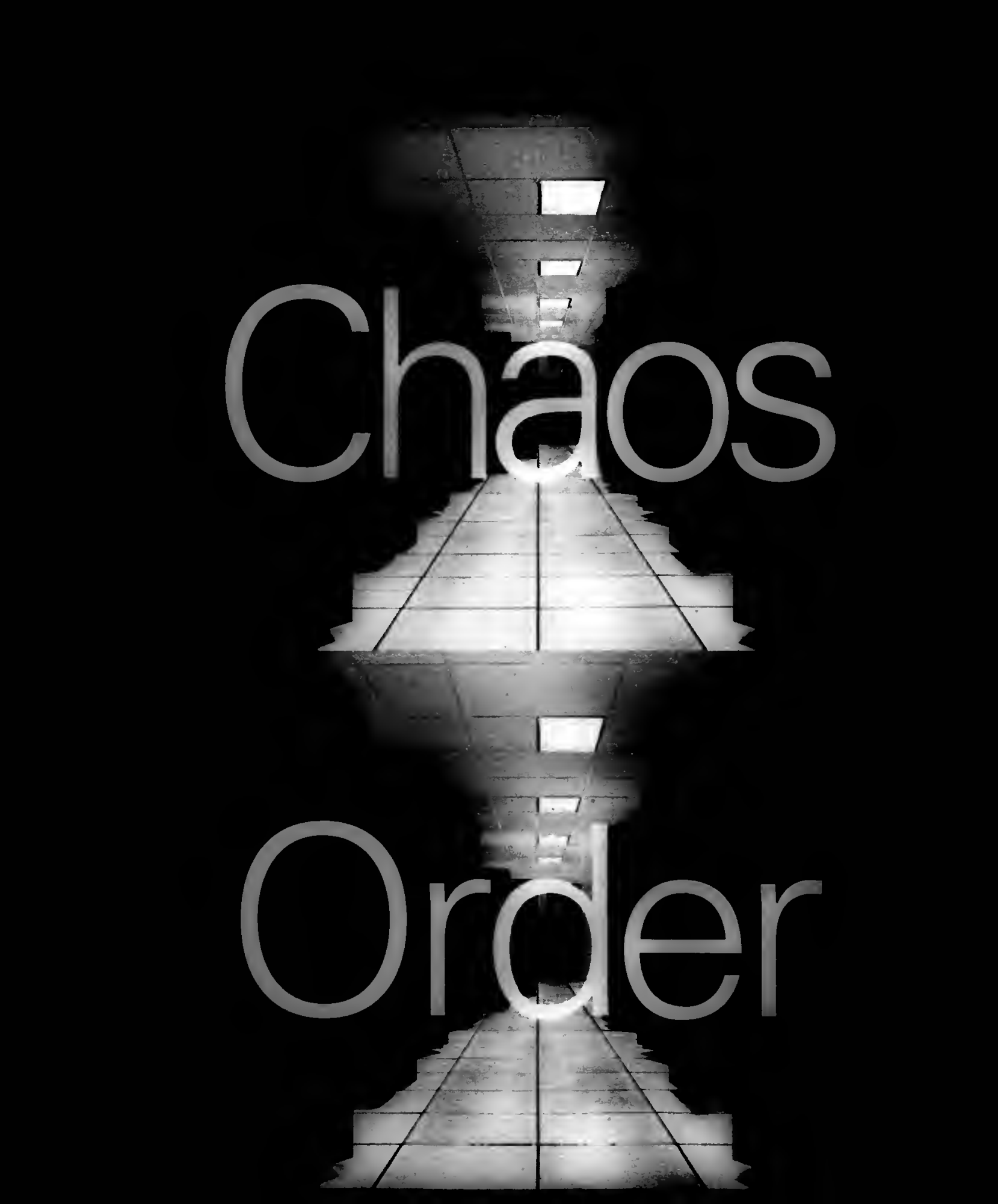
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Canada

It's the safe 'near-shore' option, though it's a little pricey. By Alan S. Horowitz

MANY AMERICANS VIEW Canada almost as a 51st state. Canadians, of course, think otherwise. But this fanciful notion has a basis in reality, a fact that suggests that if you want to outsource IT services to another country, Canada is the least risky, most familiar place to do so.

The advantages of Canada vs. other outsoureing centers are many. It has the same time zones as the U.S., its major cities are near major U.S. cities, English is widely spoken there, and its culture and business practices are very similar to those in the U.S.

And there's a cost advantage over the U.S. "We're cheap and deep," is how it's put by Bill Bergen, CEO of the Information Technology Association of Canada in Mississauga, Ontario.

Jobs, measured in Canadian dollars, usually pay about the same or a bit less than similar jobs in the U.S. But because of the exchange rate, Canada enjoys a labor cost advantage over the U.S. of about 30%, estimates Peter Bendor-Samuel, CEO of Everest Group, an outsourcing consultancy in Dallas.

Canada has a number of high-tech centers. Toronto is strong in financial services, software development and mainframe technology. Ottawa is a center for wireless and semiconductor technology and software development, while Vancouver's strength is in software development, says Vito Mabrucco, a vice president at IDC Canada in Toronto.

Jason Bremner, director of outsourcing services at IDC Canada, says that of Canada's three major outsourcing vendors, two — IBM and Electronic Data Systems Corp. — are American, while the third, CGI Group Inc., is Canadian.

Given that dominance of U.S. outsoureers, it should come as no surprise that doing business in Canada isn't much different from doing business in the U.S.

"I think most U.S. CIOs familiar with the Canadian market will admit that Canada's IT maturity and expertise is on par with the U.S.," Bremner says.

That has been the experience of Will Shelton, chief operating officer at Arbella Insurance Group in Quincy, Mass. The company sends data to a CGI Group facility in Montreal, where it's converted into print images that are later printed on paper as customer invoices and forms. Arbella was outsoureing the data conversion to a U.S. vendor but was dissatisfied with the service, so it switched to CGI for better service and a cost reduction of about 40%, says Shelton.

> Canada has the advantage of an English-speaking labor pool, as well as close proximity to the U.S. and a very stable government. Canada also earns top-notch education rankings

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Companies are also going to Canada as a hedge against the political, legal, project management and other risks of placing all of one's IT in an offshore country such as India, says Jim Brewer, a vice president at IT outsourcer Keane Inc., which is based in Boston and has operations in Halifax, Nova Scotia, and in India.

Perhaps one of Canada's strongest pluses is the comfort factor — it's close, it's familiar. "Canada is perceived as an easy way to get into outsourcing," says Brewer. "There can be a lot of discomfort when someone's systems are 10,000 miles away."

Shelton agrees. "I don't have the sorts of concerns with Canada that I do with other countries further away," he says. "We share a common culture, they're our largest trading partner, and they have a significant U.S. presence."

Low employee turnover is another potential benefit of moving IT services to Canada. John Foreman, a vice president at CGI, says his company, which has 16,500 employees in Canada and is the country's largest IT services provider, has a turnover rate of about 6%.

Of course, Canada does have some disadvantages. Compared with, say, India and China, Canada is pricey.

And Foreman notes that U.S. regulations prohibit some types of data, such as information related to certain financial transactions, from being processed outside of the country. In those cases, CGI Group stores the data in U.S. data centers.

And not everyone is enamored of the quality of Canada's service. IDC Canada's Bremner says he has found a "rather ordinary level of customer satisfaction" among U.S. companies that have outsoureed to Canada.

Other than currency risk, observers don't see any special risks to outsourcing in Canada. Shelton recommends that CIOs take the same precautions they would take when outsourcing to any country, such as spelling out the dispute-resolution process in the contract and specifying which country's laws they'll operate under. He suggests starting with a small project and expanding the relationship after seeing how well the provider performs.

Horowitz is a freelance writer in Salt Lake City. Contact him at alan@ahorowitz.com.

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And not everyone is enamored of the quality of Canada's service. IDC Canada's Bremner says he has found a "rather ordinary level of customer satisfaction" among U.S. companies that have outsourced to Canada.

Other than currency risk, observers don't see any special risks to outsourcing in Canada. Shelton recommends that CIOs take the same precautions they would take when outsourcing to any country, such as spelling out the dispute-resolution process in the contract and specifying which country's laws they'll operate under. He suggests starting with a small project and expanding the relationship after seeing how well the provider performs. ◗

Horowitz is a freelance writer in Salt Lake City. Contact him at alan@ahorowitz.com.

The Philippines

Costs are low and the English is flawless, but there are pockets of political instability. By Stacy Collett

IT'S TUESDAY MORNING AT 8:30. The five members of a project team at Ondeo Nalco Co. in Naperville, Ill., assemble in a conference room around the speakerphone while business-side project manager John Ostberg dials up their software development counterparts half a world away.

It's 8:30 Tuesday night in Manila. After a marathon day, programmers Fermin de los Angeles, Ben John Parado and Joey Riosa of outsourcing consultancy Headstrong Corp. take the call and rehash the day's events.

Ostberg and his team know the faces behind the speaker. The three Filipino programmers spent two months in Naperville getting to know their counterparts and the project. Their English is flawless, but to guard against misinterpretations, a Filipino project manager makes sure that instructions are understood and that business plans are packaged into specific tasks for the Manila team.

For almost a year, this outsourcing arrangement has run smoothly for the water treatment, chemicals and services company. After jointly developing its business intelligence warehouse with Fairfax, Va.-based Headstrong, Ondeo Nalco's project team figured it could scale back and let offshore programmers make smaller enhancements to the system. It enlisted Headstrong's development team in the Philippines initially to save money — with little concern for location, Ostberg recalls. But he has since found the island nation to be good for offshore work.

"After India, the Philippines is probably the second most popular destination when it comes to pure offshore outsourcing," says Atul Vashistha, CEO of NeoIT Inc., an offshore outsourcing advisory firm in San Ramon, Calif. With a $1 billion outsourcing industry, the country is known for its applications development and maintenance, contact centers, business process outsourcing and content conversion.

Vashistha credits the Philippines' popularity to its English proficiency, a highly skilled workforce (380,000 college graduates annually), a developing telecommunications infrastructure and low cost. An experienced programmer earns $6,000 to $12,000 a year, he says. But there's still a shortage of experienced program managers to oversee projects.

> Skilled IT workers may have transferred out of the country as geopolitical risks have escalated

Meta Group Inc. researchers rank the Philippines behind other Asia-Pacific countries such as Singapore because of its political instability and lack of native IT companies, according to Howard Rubin, Meta Group's executive vice president.

For most of the past decade, the Philippines has been dealing with militant Muslim insurgents. "It has a destabilizing effect on the nation's ability to attract and sustain foreign capital investment, and thus poses serious threats to the economy," Meta Group reports.

NeoIT's Vashistha insists that the threat is limited to the Philippines' southern islands and hasn't affected IT work in Manila. But he acknowledges that companies should "make sure they have solid business continuity and disaster recovery plans."

A research report by Tech-Economy.org in Palo Alto, Calif., sums up the situation this way: "With its large English-speaking base, the Philippines would be a logical location for the development of software, but the industry is underdeveloped."

The Philippines needs more software engineers and software development companies. The report says there are about 10,000 software programmers nationwide and only 30 companies focusing on software development. By contrast, "the geographically small Ireland, with a population 20 times smaller than the Philippines, has more than 800 indigenous software development enterprises, 26 times more than the Philippines," the report says.

To foster more local IT companies, President Gloria Macapagal-Arroyo, who came to power in January 2001, leads a task force on stimulating the development of Philippine IT and companies in the business process outsourcing field. Companies that set up IT business parks enjoy a six-year tax holiday that includes exemptions from government fees, licenses and export taxes. Today, native outsourcing vendors in the Philippines include Software Ventures International Corp., SPI Technologies Inc. and Innodata Corp.

At Ondeo Nalco, the biggest challenges so far have been the time difference and some system security concerns early on that took a month to rectify.

"There's a perception that if you're going to open up your network to anybody on the other side of the world, you have to be extra secure because of the danger that they'll be contaminated by connections into their network," explains Paul Gould, IT group leader for global development. So Ondeo Nalco and Headstrong spent a month deciding which ports would be opened in the firewall, what level of access people needed to do their jobs and what could be done in the U.S. vs. overseas.

Northwest Airlines Corp. began outsourcing to the Philippines five years ago to augment staffing in its applications development and applications maintenance areas, as well as to cover temporary peaks in development demand. The St. Paul, Minn.-based airline manages cultural differences through close communication, on-site presence from the vendor and regular visits by U.S.-based employees to the facility in the Philippines.

"We find our offshore colleagues to be highly educated and process-focused," says Mary Stanik, a Northwest Airlines spokeswoman.

"Our experience has taught us to expect quality development at lower hourly rates, but with higher management overhead," Stanik adds. "The offshore relationships have offered quicker access to critical skills — quicker than hiring and training."

Collett is a freelance writer in Sterling, Va. Contact her at stcollett@aol.com.

The Philippines

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STORAGE NETWORKING WORLD

October 27-30, 2003
JW Marriott Grande Lakes Resort
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- New storage network infrastructure (virtualization, networked storage
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*This session is intended for IT vendors; no non-IDC analysts permitted is this special session.

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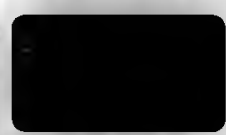

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Agenda Snapshot*

*subject to change

For details, updates, and to register visit www.snwusa.com/print

Monday, October 27
(Pre-Conference Activity and Tutorial Sessions)

9:30am-11:30am	Industry Primer, Career Development and Skills Development Tracks
1:00pm-5:30pm	SNIA Tutorial Sessions
1:00pm-6:00pm	Golf Outing at the Ritz Carlton Golf Course
7:00pm-9:00pm	Welcoming Reception

Tuesday, October 28
(General Conference - Day One)

7:15am-8:15am	Continental Breakfast
8:15am-9:15am	Opening Remarks and Visionary Presentation
9:15am-12:15pm	General Sessions
12:15pm-1:30pm	Networking Luncheon
1:30pm-3:50pm	General Sessions
4:00pm-5:30pm	Technical, Technical/Business and Business Tracks
5:30pm-6:30pm	Expo and Buffet Dinner, Interoperability and Solutions Demo

Wednesday, October 29
(General Conference - Day Two)

7:30am-10:30am	IDC Breakfast Briefing
8:15pm-Noon	General Sessions
Noon-1:30pm	Expo and Buffet Lunch
Noon-7:15pm	Interoperability & Solutions Demo
1:35pm-3:35pm	General Sessions
3:45pm-5:15pm	Technical, Technical/Business, Business and SNIA Tracks
5:15pm-7:15pm	Expo
7:30pm-8:00pm	Gala Evening

Thursday, April 17
(Tutorial and Breakout Sessions)

7:30am-8:30am	Continental Breakfast
8:30am-11:45am	Technical, Technical/Business, Business and SNIA Tracks
11:45am	Conference Concludes

Register Today!

Options for IT End-Users*	Early-bird Registration (through September 10)	On-Site Registration (after September 10)
General Conference Package (Oct. 28, 29): (includes General Conference sessions, Expo, Meals and Receptions)	$995	$1,295
Total 4-day Package (Oct. 27, 28, 29, 30): (includes General Conference Package, Technical and Business Tracks, SNIA-produced Tutorials, Pre-certification Refresher Courses)	$1,290	$1,690
Options for IT Vendors**		
Total 4-day Package (Oct. 27, 28, 29, 30): (Available to Sponsoring Vendors and their Reselling/Integrators, Industry Consultants, and Storage Solutions Implementers)	$1,290	$1,690
Non-Sponsoring/Exhibiting Vendor Package:	$5,000	$5,000

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"Best Practices in Storage" Awards Program

Submit your nomination today at www.snwusa.com or email Nanette Jurgelewicz at nanette_jurgelewicz@computerworld.com

Awards Ceremony: Wednesday, October 29, 3:05pm, SNW Main Stage

Pre-Conference Golf Outing

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The Pre-Conference Golf Outing at The Ritz-Carlton Golf Club located adjacent to the JW Marriott Resort, Lake Resort, is complimentary (green fees valued for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

For details: contact Chris Logar at 1-508-820-8277

Travel and Accommodations

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STORAGE NETWORKING WORLD

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	Earlybird Registration (through September 12)	On-Site Registration (after September 12)
Options for IT End-Users*		
General Conference Package (Oct. 28, 29) (Includes General Conference sessions, Expo, Meals and Receptions)	❑ $895	❑ $1,295
Total 4-day Package (Oct. 27, 28, 29, 30) (Includes General Conference Package: Technical and Business Tracks; SNIA-produced Tutorials; SNIA-Certification "Test-Ready" Courses)	❑ $1,290	❑ $1,690
Options for IT Vendors**		
Total 4-day Package (Oct. 27, 28, 29, 30) (Available to Sponsoring Vendors and their Resellers/Integrators, Industry Consultants, and Storage Solutions Implementors)	❑ $1,290	❑ $1,690
Non-Sponsoring/Exhibiting Vendor Package	❑ $5,000	❑ $5,000

* IT End-Users are defined as those who are attending Storage Networking World with an intent (and an IT spending budget) to potentially buy/purchase hardware/software/services/etc. from our conference sponsors and exhibitors. As such, account representatives/business development from any company, analysts, venture capitalists, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Enforcement of this interpretation and policy is at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090

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Registration Information: (This section must be completed in order to process your application)

First Name _____ Middle Initial: _____ Last Name _____

Title: _____ Company: _____

Street Address: _____ Suite, Apt., etc.: _____

City: _____ State/Prov.: _____ Zip/Postal Code: _____

Country: _____ Phone Number: _____ Extension: _____

Fax Number: _____ E-Mail Address: _____

Badge Name: _____ ❑ Special Services Required? (Please attach written description)

Would you like to receive information about playing in the golf outing on Monday, October 27th (PM)? ❑ Yes ❑ No

Please indicate your preferred conference shirt size: ❑ S ❑ M ❑ L ❑ XL ❑ XXL ❑ XXXL

Attendee Profile: (This section must be completed in order to process your application)

SECTION A - FOR IT END-USERS ONLY

Your Business/Industry:
- ❑ Transportation/Utilities
- ❑ Mining/Oil/Gas
- ❑ Media/Publishing
- ❑ Banking/Finance/Insurance
- ❑ Telecommunications
- ❑ Wholesale/Retail (Non-IT)
- ❑ Advertising/Marketing/Public Relations
- ❑ Education
- ❑ Government/Military
- ❑ Healthcare
- ❑ Manufacturing (Non-IT)
- ❑ Other

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CIO/CTO
- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Other Corporate/Business Manager
- ❑ Corporate/Business Staff
- ❑ Consultant (Internal) or Other

Select item below that most closely matches your involvement in IT decisions:
- ❑ Specify features/Technical requirements
- ❑ Evaluate/Recommend Products, Brands, Vendors
- ❑ Create strategy/Determine the need to purchase
- ❑ Set budget for expenditure
- ❑ Authorize/Approve purchase
- ❑ None of the above

Employees in your entire Company:
- ❑ 10,000+
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ Less than 100

Estimated annual revenue of your entire company:
- ❑ $10 Billion+
- ❑ $5 Billion - $9.9 Billion
- ❑ $1 Billion - $4.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $50 Million - $99 Million
- ❑ Less than $50 Million

Annual company IT budget (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Annual company IT budget (Storage products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Your personal IT spending authority (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Your personal IT spending authority (Storage products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

SECTION B - FOR IT VENDORS ONLY

Your Business/Industry:
- ❑ VAR/VAD/ASP/System Integrator
- ❑ Industry Consultant/Storage Solution Integrator
- ❑ Manufacturing (IT)
- ❑ Computer Retailer/Dealer/Wholesaler
- ❑ Software Development (Storage)
- ❑ Other Computer Related (Non-Storage)

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CFO/Controller/Treasurer
- ❑ VP/GM/Director
- ❑ Sales/Marketing/Product Staff
- ❑ CIO/CTO/Other IS/IT Manager
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1) He or she may substitute another attendee for this conference.
2) He or she may transfer the registration to the Spring 2004 Storage Networking World conference, if written notice is received by October 6, 2003.
3) The registration fee will be refunded, less $250 service charge, if written notice is received by October 6, 2003.

Computerworld reserves the right to limit and/or refuse any registration for any reason.

Schedule of Conference Events (subject to change)

Monday, October 27, 2003
- Industry Primer
- SNIA Produced Tutorial Sessions
- Pre-Conference Golf Outing
- Welcome Reception

Tuesday, October 28, 2003
- General Conference & User Case Studies
- Interoperability and Solutions Demo
- Exposition
- Pre-certification Refreshers

Wednesday, October 29, 2003
- General Conference & User Case Studies
- Interoperability and Solutions Demo
- Exposition
- Pre-certification Refreshers
- Gala Evening

Thursday, October 30, 2003
- Tutorial Sessions
- Pre-certification Refreshers

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*Complimentary registration is restricted to qualified IT executives only.

New York City • September 23, 2003

Hilton New York • 1335 Avenue of the Americas

8:00am to 8:30am	Registration and Networking Breakfast
8:30am to 9:00am	**Turning Information into Insight: The Changing Role of Business Intelligence in the Enterprise** Maryfran Johnson, Editor in Chief, Computerworld
9:00am to 9:45am	**A Case Study: Building a Genuinely Customer-Focused Organization to Drive Customer Retention, Loyalty and Profitability** Tony LoFrumento, Executive Director, Customer Relationship Management, Morgan Stanley
9:45am to 10:15am	Chris Thomas, Chief Strategist, Intel
10:15am to 10:45am	Refreshment and Networking Break
10:45am to 11:45am	**High-Impact Strategies for Delivering Business Intelligence Results** Panel Discussion moderated by Julia King, National Correspondent, Computerworld
11:45am to 12:15pm	**Evolving the Enterprise: Leveraging Information for Competitive Gain** Jim Davis, SVP, SAS Institute
12:15pm to 1:00pm	Networking Luncheon
1:00pm to 1:30pm	**Building Innovation into a Business Intelligence Infrastructure** Shaku Atre, author of Business Intelligence Roadmap and President, Atre Group
1:30pm to 2:00pm	**Turning a Legal Eye on IT Governance** James Hackett, Jr., Partner, Choate, Hall & Stewart
2:00pm to 3:00pm	**Regulated IT: Uncle Sam Wants Your Data** Panel Discussion moderated by Tom Hoffman, Computerworld Reporter
3:00pm	Program concludes

San Francisco • September 25, 2003

The Fairmont San Francisco • 950 Mason Street (Nob Hill)

8:00am to 8:30am	Registration and Networking Breakfast
8:30am to 9:00am	**Turning Information into Insight: The Changing Role of Business Intelligence in the Enterprise** Maryfran Johnson, Editor in Chief, Computerworld
9:00am to 9:45am	**The User Experience: An In-Depth Case Study**
9:45am to 10:15am	**Thriving in Times of Transition: One CIO's Perspective** Doug Busch, CIO, Intel
10:15am to 10:45am	Refreshment and Networking Break
10:45am to 11:45am	**High-Impact Strategies for Delivering Business Intelligence Results** Panel Discussion moderated by Julia King, National Correspondent, Computerworld
11:45am to 12:15pm	**Evolving the Enterprise: Leveraging Information for Competitive Gain** Jim Davis, SVP, SAS Institute
12:15pm to 1:00pm	Networking Luncheon
1:00pm to 1:30pm	**Building Innovation into a Business Intelligence Infrastructure** Shaku Atre, author of Business Intelligence Roadmap and President, Atre Group
1:30pm to 2:30pm	**Regulated IT: Uncle Sam Wants Your Data** Panel Discussion moderated by Tom Hoffman, Computerworld Reporter
2:30pm to 3:00pm	Thornton May, IT Futurist and Computerworld Columnist
3:00pm	Program concludes

Selected speakers include:

Tony LoFrumento
Executive Director
Customer Relationship Management
Morgan Stanley

Shaku Atre
Author
Business Intelligence Roadmap

Thornton May
IT Futurist

Doug Busch
CIO
Intel

Maryfran Johnson
Editor in Chief
Computerworld

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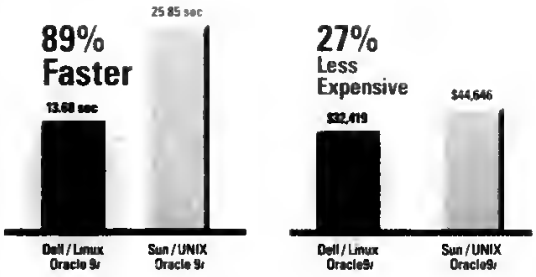

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Based on IDC Quarterly Server Tracker, June 2003. [2]Tests by Dell in January 2003 on baseball database. Dell configuration: Dell PowerEdge 6650 server with four 2.0 GHz Xeon MP processors, Red Hat Linux Advanced Server 2.1, 3 Year Gold Support. Price: $32,419 (www.dell.com, 7/1/03). Sun configuration: Sun Fire V480 server with four 900 MHz UltraSPARC III processors, Solaris 9 (12/02 version), 3 Year Gold Support. Price: $44,646 (www.sun.com, 7/1/03). For details and results, see www.dell.com/migration.

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Mexico

It's close to home, but programmers may need specific instructions.

By Alan S. Horowitz

AMERICANS TEND TO view Mexico as a Third World country, which is technically the case. Less appreciated is Mexico's rank as the 11th-biggest economy in the world. With an important economy so close to the U.S., it's no surprise that Mexico is a player in the global market for IT outsourcing services.

"There is a very large, educated, young population. There are plenty of people available for the work, including skilled technical people," says Raymond Duran, an account executive in the Juarez, Mexico, office of GECIS Americas, an outsourcing vendor that's part of General Electric Co.

"The talent pool is similar to the U.S. for a much cheaper price, at least a third the price," says Gary Taylor, controller for KPMG International's Dallas Accounting Service Center, which outsources accounting services and some programming to GECIS in Mexico.

David Mard has a somewhat different view of Mexico's cost advantages. The director of IT at Mexico Express, a regional courier service in La Mirada, Calif., says he finds that on larger IT projects, outsourcing to Mexico saves 50% to 60% of the cost of doing the same project in the U.S. But on smaller projects, there's little or no savings.

"The price for an application developer in the U.S. is $100 to $125 per hour and $20 to $30 per hour in Mexico, but it takes four times as many people do to the project in Mexico." Wheo asked why, he says, "I don't know. I just know the larger the project, the more the cost savings."

> The Monterrey Institute of Technology and Higher Learning has 17,441 students with majors such as computer systems engineering and computer systems administration

Lower costs are, of course, a driving force behind outsourcing to any country, but Mexico has some additional positives going for it. According to Stephen Lane, an analyst at Aberdeen Group Inc., these include proximity to the U.S., a workforce that is well educated (though a small part of the total population) and a good location for doing business in Latin America.

Location is one reason why Mexico Express outsourced to Mexico. Having programmers who know the geography and cities — and who understand the regional business culture — is a "huge advantage," says Mard.

In addition, Mexico has three technology parks. Monterrey Technology Park, located 15 minutes from Monterrey's International Airport and 120 miles from the U.S. border, is designed to house multinational companies. Apodaca Technology Park is also located near Monterrey, and Guadalajara Technology Park is located in the heart of Mexico's version of Silicon Valley.

Mexico does have its limitations. Peter Bendor-Samuel, CEO of outsourcing consultancy Everest Group in Dallas, ootes that Mexicans with a good education have a lot of job options, including going to the U.S. "Peoole have struggled with maintaining staff there and expanding rapidly," he says. "That will reflect on the quality of your work and the price points."

Mard says the Mexican programmers he has worked with haven't been good at taking a project from beginning to end. They've been better at development than design and have required design specifications to he as detailed as possible.

For example, he says he asked for a program to produce a printed customer receipt. What he got was a program that produced a receipt, but with prices rounded to a trillionth of a cent. Wheo Mard said that didn't make sense, the response was that he hadn't specified that he wanted it otherwise. "If we are specific, they do a dynamite job developing code, but if we're vague, there's trouble," he says.

Duran says you should always make a site visit to confirm what the outsourcer says. For example, an outsourcer might accurately say that the computer room has electric generator backup, but that doesn't mean the workstations have uninterruptible power supplies. As a result, in a blackout, such a facility would effectively he closed because all the workstations would he down.

Be sure to ask how much experience the management staff has, and talk to the production people to make sure they understand the processes they're working on. "In Mexico," Duran says, "you have a lot of small mom and pop shops that try to get into [business process outsourcing], so as a customer, you have to validate what they can do."

While Mexico has its shortcomings, they haven't dissuaded Mard from outsourcing there. "I feel more comfortable doing business in Mexico," he says. "It's just a two-hour flight, and I know nothing about India," where he has also considered outsourcing. Overall, Mard says, "we're very, very satisfied."

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Political stability	30	Medium
IT skills availability	43	Low
IT and network infrastructure	44	Low

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Low taxes and a friendly culture make this nation appealing for IT centers. But there's a price to pay for those skilled workers. By Steve Ulfelder

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Why actively seek less expensive apprentices, rather than simply find a cheaper country? Carmody says Ireland's advantages make the country's premium price worthwhile, but that doesn't prevent Prudential from seeking bargains where possible. The company pays its Irish IT workers "right in the average range," he adds. McCaffrey puts that at $23,000 to $36,000.

Salaries are Ireland's Achilles' heel. The country's low population (3.9 million in 2002, according to the CIA's *The World Factbook*), strong economy and early success as an offshore labor source have driven up costs. The outstanding universities and three-year technical programs in Ireland and Northern Ireland turn out only 11,000 or so computer science graduates each year, McCaffrey says, and there's a lot of competition for those fresh-faced IT pros: IBM, Oracle Corp. and Microsoft Corp. are just a few of the U.S. high-tech giants that have major production and development facilities in Ireland.

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"Ireland has made a commitment," McCaffrey says. "They are going to be a world software powerhouse."

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China

Low-level IT work is its forte now, but this Asian giant is eyeing a future as a major outsourcing player. By Steve Ulfelder

CHINA'S POTENTIAL in the outsourcing game causes India, the Philippines and other outsourcing strongholds to tremble in their boots, experts say. And for good reason: The nation boasts a massive population, a strong university system and a central government that's determined to create a global technology powerhouse.

But for now, China is best suited to low-level IT work such as maintenance and porting, most analysts say. The country's IT workers are also happy to do work on older systems, such as the AS/400, that may no longer interest Indian firms.

PHOTO BY JOHN UPLAND

Despite this assessment, Bain Capital LLC is entrusting application development work to China, according to Dave Hamilton, CIO at the Boston investment firm. "This is a full-fledged Web-based [trading] application," he says. In a project managed by E5 Systems Inc., a Waltham, Mass., offshore outsourcing vendor, Chinese programmers will develop and then maintain the software. The applicatioo development began just months ago, so Hamilton says it's far too early to say whether the project will succeed. He advises peers to "work very, very closely with [an] outsourcer when the country is an unknown."

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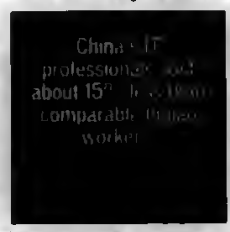
Cost was also the big draw at Sweetheart Cup Co., which is in the early stages of a shift from proprietary production software to an open-source platform encompassing Java, Linux and Apache servers, says John McGregor, CIO of the Owings Mills, Md., manufacturer. Sweetheart is sending the work to China after determining it will cost 40% less there than it would have in India.

"We're a penny business anyway," says McGregor, referring to the low-cost paper cups Sweetheart manufactures. "These days, it's all about cost containment, so that 40% is attractive."

Like Bain Capital, Sweetheart Cup is using E5 as its outsourcer, and the project is in its infancy. The companies' CIOs concede that there are increased risks but say that signing on with a leading outsourcer such as E5 or Lionbridge Technologies Inc., also based in Waltham, mitigates those risks.

Wireless work is also viewed as a Chinese strength. The nation "got to skip a whole generation of technology," says Gordon Brooks, E5 Systems' CEO, and thus enjoys a wireless infrastructure that belies its overall immaturity. In addition, China is embracing open-source software, especially Linux — at least in part because the nation is one of the worst offenders where software piracy is concerned. (According to a 2002 International Intellectual Property Alliance special report, there's a 93% revenue loss for business software in China.) Brooks says the company pays its Chinese programmers more than the national average, which analysts say is about $5,850 per year, though English-speaking programmers can make about $9,000.



However, China is relatively inexperienced compared with India, Ireland and other nations, according to Gartner Inc. But its major weakness is a lack of familiarity with everyday use of the English language. English is taught in Chinese schools, and in fact, for the past eight years, college students have had to pass an exam testing their proficiency in order to graduate. "So Chinese [IT professionals] all read and write English well," says Brooks. "But that doesn't mean they speak it well."

Overall, China lacks the maturity of more established countries. Skilled project managers are hard to come by, and certification even more so, according to Gartner.

Moreover, while the Communist Party of China has pushed to make China an outsourcing player, government involvement in the traditionally wide-open world of software development is a double-edged sword, says Stephen Lane, an analyst at Aberdeeo Group Inc. in Boston. "This is a government that shuts down Web sites, remember."

The political climate in China will give some IT organizations pause. "When people think China, they think Tiananmen Square," Brooks says. He adds that judging a vast nation this way is like "judging the U.S. by watching tapes of the Rodney King beating."

"The Chinese government is taking a tremendous gamble," Lane says. "They are saying, 'We can continue to be authoritarian and maintain the Communist Party if we open up our economy and [thus] offer people better lives.' If they fail for any reason, the risks of internal political strife are tremendous."

For this reason, companies using Chinese outsourcers must be vigilant on risk-mitigation basics, such as offsite backup and employee screening.

Sheer numbers are key to China's rise as an IT player. As home to 1.28 billion people in 2002, according to the Population Reference Bureau — about one-fifth of the total world population — the nation boasts about 400,000 IT professionals, according to analyst and vendor estimates. That number rises by 50,000 each year, Gartner says. And according to Marty McCaffrey, executive director of Software Outsourcing Research in Salinas, Calif., China's universities could soon churn out a staggering 200,000 computer science graduates annually.

The anticipated massive increase is a product of the communist government's decision to become a world technology leader, according to several analysts. To that end, China has pulled out all the stops as only an authoritarian government can. In the past half-decade, the country's strong university system has ratcheted up programs in both computer science and English, says Atul Vashistha, CEO of NeoIT Inc., an offshore outsourcing advisory firm in San Ramon, Calif. And McCaffrey says China is building no fewer than 10 universities right now to increase its supply of IT professionals.

As China produces such a prodigious quantity of IT pros, and as their project management skills and English proficiency mature, it's no wonder competitors are nervous.

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Like Bain Capital, Sweetheart Cup is using E5 as its outsourcer, and the project is in its infancy. The companies' CIOs concede that there are increased risks but say that signing on with a leading outsourcer such as E5 or Lionbridge Technologies Inc., also based in Waltham, mitigates those risks.

Wireless work is also viewed as a Chinese strength. The nation "got to skip a whole generation of technology," says Gordon Brooks, E5 Systems' CEO, and thus enjoys a wireless infrastructure that belies its overall immaturity. In addition, China is embracing open-source software, especially Linux — at least in part because the nation is one of the worst offenders where software piracy is concerned. (According to a 2002 International Intellectual Property Alliance special report, there's a 93% revenue loss for business software in China.) Brooks says the company pays its Chinese programmers more than the national average, which analysts say is about $5,850 per year, though English-speaking programmers can make about $9,000.

China's IT professionals cost about 15% less than comparable Indian workers

However, China is relatively inexperienced compared with India, Ireland and other nations, according to Gartner Inc. But its major weakness is a lack of familiarity with everyday use of the English language. English is taught in Chinese schools, and in fact, for the past eight years, college students have had to pass an exam testing their proficiency in order to graduate. "So Chinese [IT professionals] all read and write English well," says Brooks. "But that doesn't mean they speak it well."

Overall, China lacks the maturity of more established countries. Skilled project managers are hard to come by, and certification even more so, according to Gartner.

Moreover, while the Communist Party of China has pushed to make China an outsourcing player, government involvement in the traditionally wide-open world of software development is a double-edged sword, says Stephen Lane, an analyst at Aberdeen Group Inc. in Boston. "This is a government that shuts down Web sites, remember."

The political climate in China will give some IT organizations pause. "When people think China, they think Tiananmen Square," Brooks says. He adds that judging a vast nation this way is like "judging the U.S. by watching tapes of the Rodney King beating."

"The Chinese government is taking a tremendous gamble," Lane says. "They are saying, 'We can continue to be authoritarian and maintain the Communist Party if we open up our economy and [thus] offer people better lives.' If they fail for any reason, the risks of internal political strife are tremendous."

For this reason, companies using Chinese outsourcers must be vigilant on risk-mitigation basics, such as off-site backup and employee screening.

Sheer numbers are key to China's rise as an IT player. As home to 1.28 billion people in 2002, according to the Population Reference Bureau — about one-fifth of the total world population — the nation boasts about 400,000 IT professionals, according to analyst and vendor estimates. That number rises by 50,000 each year, Gartner says. And according to Marty McCaffrey, executive director of Software Outsourcing Research in Salinas, Calif., China's universities could soon churn out a staggering 200,000 computer science graduates annually.

The anticipated massive increase is a product of the communist government's decision to become a world technology leader, according to several analysts. To that end, China has pulled out all the stops as only an authoritarian government can. In the past half-decade, the country's strong university system has ratcheted up programs in both computer science and English, says Atul Vashistha, CEO of NeoIT Inc., an offshore outsourcing advisory firm in San Ramon, Calif. And McCaffrey says China is building no fewer than 10 universities right now to increase its supply of IT professionals.

As China produces such a prodigious quantity of IT pros, and as their project management skills and English proficiency mature, it's no wonder competitors are nervous.

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@charter.net.

Singapore

This small island packs a powerful outsourcing punch, but it's not cheap. By Stacy Collett

THE TINY ISLAND of Singapore is considered one of the most wired countries in the world. In fact, Singapore recently leapt into first place in the global IT economy rankings produced by nonprofit Tech-Economy.org, surpassing the U.S. and Sweden. Singapore earned top marks for its free-trade policies and "visionary government."

Because Singapore has a world-class telecommunications infrastructure and a highly skilled workforce of 2 million people, many global firms choose it for their Asian headquarters, including IBM, Electronic Data Systems Corp. and SAS Institute Inc. Other U.S.-based companies outsource their data center operations and network management to Singapore.

But compared with other Asian locations, Singapore is expensive. Labor rates can be double those of other Southeast Asian countries, according to some U.S. companies that outsource to the region.

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Singapore's government has high hopes of establishing the country as Southeast Asia's financial and high-tech hub. "Their goal is 6 million IT workers," Vashistha says. "Right now, a lot of the labor force comes from outside the country — a lot from India. You're starting to see Singapore companies outsourcing their work to India and China."

FLAGS BY JOHN IRELAND

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Vietnam

A 'country in progress' has high hopes but lacks modern facilities. By Stacy Collett

AS AN OUTSOURCING LOCATION, Vietnam is about 10 years behind India. It has attracted attention because its education systems are good, but its graduates lack adequate English proficiency. Telecommunications, power and buildings need improvement, and uncertainty about the region's stability remains.

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But Vietnam faces other hurdles. By 2005, the Vietnamese government wants to employ 50,000 IT workers and become part of the World Trade Organization. To reach those goals, "they'll have to get their act together," says Heinz Platten, vice president for offshore business development at GCS. "They have to modernize the banking system, infrastructure, phone system. Once they're part of the WTO, it will probably be easier to attract business."

The country's progress wasn't helped by the SARS epidemic. "Vietnam was one of the early SARS-affected countries. We canceled two scheduled trips to Vietnam. That actually set us back about one to two months in one of our initiatives," says Mater. "We were able to continue our work through electronic and voice communications . . . but there's really no substitute for some personal meetings."

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Malaysia

Success comes one park at a time. By Stacy Collett

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Surya says his team of software engineers has turned out to be world-class. Experienced software engineers in the country earn about $30,000 annually.

By 2011, local officials expect the high-tech corridor to be supporting a working population of approximately 50,000 and a resident population of more than 120,000. But the sluggish economy has slowed the country's technology momentum, and it continues to struggle with a small workforce.

"Malaysia is still an emerging player in the outsourcing space," says Partha Iyengar, a Gartner Inc. analyst in Pune, India. But the country is still forging ahead. Construction of the high-tech parks includes a state-of-the-art fiber-optic network, new roads, and new office and living spaces. The government is also considering a set of laws promoting e-commerce.

The critical shortage of skilled IT workers, however, remains the country's biggest concern. "The pool of capable programmers is small. They import a lot of talent from India and China," says Atul Vashistha, CEO of NeoIT Inc., an offshore outsourcing advisory firm in San Ramon, Calif.

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To combat the problem, the Malaysian government has established "smart schools" that have the staff and equipment to train a large IT workforce.

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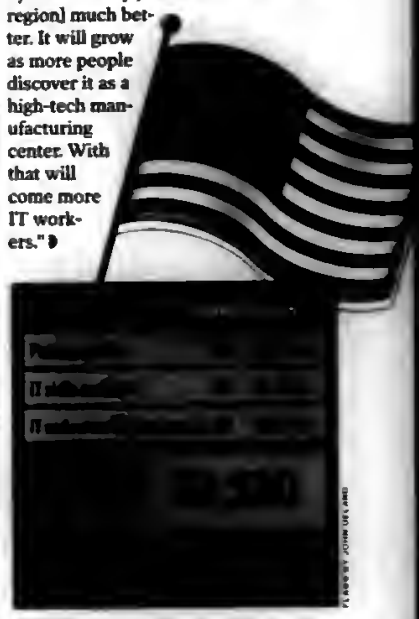

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Brazil

It's a sleeping giant with a tradition of high-quality software. By Alan S. Horowitz

BRAZIL IS WELL KNOWN for the bossa nova, string bikinis and Amazon forests. Less well known is that, by many measures, it's one of the world's major countries. It ranks fifth in both geographic size and population (180 million people) and has the world's eighth-largest economy.

That said, it generally isn't on the radar screen of IT departments thinking of outsourcing. "I don't know anyone going to Brazil [for IT outsourcing]," says Michael Janssen, an outsourcing consultant at Everest Group in Dallas.

This isn't all that surprising given Brazil's perceived limitations as an outsourcing venue. Peter Bendor-Samuel, CEO of Everest Group, says Brazil has a number of shortcomings compared with other offshore centers. Among those are higher costs than outsourcing giant India (he says Brazil has a 30% advantage over the U.S. vs. India's 50%), a longer distance from the U.S. than neighbors Canada and Mexico, and a smaller pool of educated English speakers than, say, India or Canada.

But Brazil isn't out of the running. Thiago Maia, executive vice president at IT outsourcing vendor Vetta Technologies Ltd. in Belo Horizonte, Brazil's third-biggest city, cites a number of the country's strengths: time zone (depending on the season, Rio de Janeiro is just one or three hours later than New York, since one's on daylight-saving time while the other's on standard time), a culture more similar to the U.S.'s than India's is, an expanding software industry and an oversupply of IT professionals.

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Infrastructure can be an issue, since much of Brazil is very poor. Major cities have reliable electricity and phone service, but Internet connectivity is slower and more expensive than in the U.S. Goertzel likens Brazil's Internet infrastructure to that of the U.S. about five years ago.

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	RANKING	RATING
Political stability	10	Medium
IT skills availability	9	High
IT and network infrastructure	8	High

(U.S. DOLLARS) $19,140

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Vietnam

A 'country in progress' has high hopes but lacks modern facilities. By Stacy Collett

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	RANKING	RATING
Political stability	N/A	Medium
IT skills availability	N/A	Low
IT and network infrastructure	N/A	Low

(U.S. DOLLARS) $4,110

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	RANKING	RATING
Political stability	26	Medium
IT skills availability	27	Medium
IT and network infrastructure	26	Medium

$8,130

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Brazil

It's a sleeping giant with a tradition of high-quality software. By Alan S. Horowitz

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Russia
And Eastern Europe

There's a treasure trove of scientific talent — and lots of government bureaucracy. By Maria Trombly

COMPARED WITH some of the big-league outsourcing players, Russia is a rookie. The country's current revenue from IT outsourcing is $150 million to $200 millioo annually, a drop in the bucket compared with India's yearly draw of $6 billion. But, though little more than a decade old, Russia's outsourcing industry is learning to play to its strengths and is growing by 50% annually, analysts say.

Those strengths include low-cost and highly trained workers. The annual salary for a programmer runs about $5,000 to $9,000, whicb is comparable to salaries in India. The World Bank estimates that Russia has the third-highest number of scientists and engineers per capita in the world.

But Russia's acceptance as an outsourcing destination has been lukewarm. The country is widely perceived as having an unstable economy and an inadequate technology infrastructure. Although in recent years, these issues have been addressed to a large degree, the Russian governmeot itself continues to be an impediment to investment. "The biggest problem with the Russian governmeot and its influence on the country's business culture is a lack of overall business transparency, a complex bureaucracy and restrictive tax, customs and immigration laws," says Stephen Lane, an analyst at Aberdeen Group Inc.

In addition, the government's financial investment in the IT sector is small compared with India's, which has a 10-year head start, and China's, where an authoritarian government makes investment decisions more easily than a nasceot democracy like Russia. "But the government is beginning to recognize this need," says Lane. "They are beginning to recognize that they have a jewel here and need to do something to promote it."

In addition, the U.S. Department of Energy has been putting money into finding productive work for ouclear scientists who might otherwise be tempted to take jobs in North Korea. Also, a large number of Soviet émigrés now working in the West have been sending work to colleagues in the old country. And finally, software development requires little more than brainpower, a computer and an Internet connection, all of which Russia has in abundance, particularly in its larger cities.

Vladimir Dubinin, who until recently was a vice president at Automated Trading Desk LLC, a New York-based trading technology company, turned to his homeland in 1999 when he needed to hire programmers to build prediction models. The team at Aljba Center in Moscow developed not only the theoretical estimates, but also the software needed to put them into practice, says Dubinin.

> Big clients are reluctant to consider small outsourcing firms, which is a problem for Russia because its outsourcing firms average 30 to 45 employees

Although Russia may not be the best place to find large teams of experienced developers, it's an excellent location for scientific talent. "If you waot to do a research project, you'd be better off with an Eastern European country, especially Russia," he says.

"It does help a lot if you have at least one person wbo can communicate freely [in English]," Dubinin adds. "Especially when you need to communicate something fast."

But Russia's bureaucracy continues to be a problem. "You spend many more hours doing accounting in Russia compared with the U.S.," he says. On the plus side, he adds, it's easy to hire additional personnel quickly.

In general, the former Soviet Union has several strikes against it. Companies in the region tend to have short track records, not enough experienced management talent and a shortage of English speakers.

Craig Maccubbin, vice president of technology at LasVegas.com LLC, looked past these negatives when he decided to hire a company whose development team was based in Minsk, Belarus, a former Soviet republic. LasVegas.com, a joint venture of Mandalay Resort Group and Park Place Entertainment, both in Las Vegas, lets online visitors buy airplane tickets, rent cars, book botel rooms and get tickets to shows. "There was a significant amount of custom, one-off developmeot that needed to be done," he says. Maccubbin looked at several options, including both U.S. and offshore resources, before picking Princeton, N.J.-based EPAM Systems Inc., along with companies in Ireland and the U.K. EPAM built LasVegas.com's content management systems, developed custom code to work with a third-party booking engine and maintains and updates the site.

"We've had fewer time-zone issues with Minsk, despite the additional two hours of difference" from Ireland and the U.K., he says. Not only was the Minsk team more willing to adjust its working hours, but communication was easier because of EPAM's project-tracking tools. Maccubbin estimates that hiring EPAM resulted in costs 20% to 30% less than in-house programmers and even greater savings over U.S.-based consultants.

Russia may be the biggest, but other Eastern European countries are poised for growth. Belarus and Ukraine, with large numbers of Russian-speaking programmers, offer a lower-cost alternative to Russia, says Gartner Inc. analyst Ian Marriott. Poland and the Czech Republic are seeing significant market growth because of their scientifically and technically educated workforces, says Marriott. Hungary has a more mature and slow-growing IT market but a greater availability of IT, management and entrepreneurial skills, he says.

Marriott estimates that the region could exceed $1 billion in outsourcing revenue by 2005, if economic problems and the mass emigration of knowledge workers are held at bay. But if companies like EPAM continue to grow, and if demand increases from the European Union, Russia's offshore development sector has a shot at the big leagues. ▶

Trombly is a freelance writer in Belchertown, Mass. Contact her at maria@trombly.com.

OOPS

Read about the lessons one company learned from a Russian outsourcing project that failed.

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Russia
And Eastern Europe

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COMPARED WITH some of the big-league outsourcing players, Russia is a rookie. The country's current revenue from IT outsourcing is $150 million to $200 million annually, a drop in the bucket compared with India's yearly draw of $6 billion. But, though little more than a decade old, Russia's outsourcing industry is learning to play to its strengths and is growing by 50% annually, analysts say.

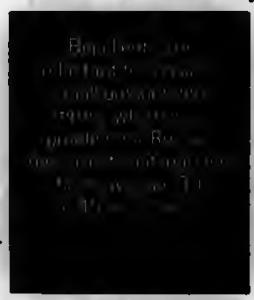
Those strengths include low-cost and highly trained workers. The annual salary for a programmer runs about $5,000 to $9,000, which is comparable to salaries in India. The World Bank estimates that Russia has the third-highest number of scientists and engineers per capita in the world.

But Russia's acceptance as an outsourcing destination has been lukewarm. The country is widely perceived as having an unstable economy and an inadequate technology infrastructure. Although in recent years, these issues have been addressed to a large degree, the Russian government itself continues to be an impediment to investment. "The biggest problem with the Russian government and its influence on the country's business culture is a lack of overall business transparency, a complex bureaucracy and restrictive tax, customs and immigration laws," says Stephen Lane, an analyst at Aberdeen Group Inc.

In addition, the government's financial investment in the IT sector is small compared with India's, which has a 10-year head start, and China's, where an authoritarian government makes investment decisions more easily than a nascent democracy like Russia. "But the government is beginning to recognize this need," says Lane. "They are beginning to recognize that they have a jewel here and need to do something to promote it."

In addition, the U.S. Department of Energy has been putting money into finding productive work for nuclear scientists who might otherwise be tempted to take jobs in North Korea. Also, a large number of Soviet émigrés now working in the West have been sending work to colleagues in the old country. And finally, software development requires little more than brainpower, a computer and an Internet connection, all of which Russia has in abundance, particularly in its larger cities.

Vladimir Dubinin, who until recently was a vice president at Automated Trading Desk LLC, a New York-based trading technology company, turned to his homeland in 1999 when he needed to hire programmers to build prediction models. The team at Aljba Center in Moscow developed not only the theoretical estimates, but also the software needed to put them into practice, says Dubinin.



Although Russia may not be the best place to find large teams of experienced developers, it's an excellent location for scientific talent. "If you want to do a research project, you'd be better off with an Eastern European country, especially Russia," he says.

"It does help a lot if you have at least one person who can communicate freely [in English]," Dubinin adds. "Especially when you need to communicate something fast."

But Russia's bureaucracy continues to be a problem. "You spend many more hours doing accounting in Russia compared with the U.S.," he says. On the plus side, he adds, it's easy to hire additional personnel quickly.

In general, the former Soviet Union has several strikes against it. Companies in the region tend to have short track records, not enough experienced management talent and a shortage of English speakers.

Craig Maccubbin, vice president of technology at LasVegas.com LLC, looked past these negatives when he decided to hire a company whose development team was based in Minsk, Belarus, a former Soviet republic. LasVegas.com, a joint venture of Mandalay Resort Group and Park Place Entertainment, both in Las Vegas, lets online visitors buy airplane tickets, rent cars, book hotel rooms and get tickets to shows. "There was a significant amount of custom, one-off development that needed to be done," he says. Maccubbin looked at several options, including both U.S. and offshore resources, before picking Princeton, N.J.-based EPAM Systems Inc., along with companies in Ireland and the U.K. EPAM built LasVegas.com's content management systems, developed custom code to work with a third-party booking engine and maintains and updates the site.

"We've had fewer time-zone issues with Minsk, despite the additional two hours of difference" from Ireland and the U.K., he says. Not only was the Minsk team more willing to adjust its working hours, but communication was easier because of EPAM's project-tracking tools. Maccubbin estimates that hiring EPAM resulted in costs 20% to 30% less than in-house programmers and even greater savings over U.S.-based consultants.

Russia may be the biggest, but other Eastern European countries are poised for growth. Belarus and Ukraine, with large numbers of Russian-speaking programmers, offer a lower-cost alternative to Russia, says Gartner Inc. analyst Ian Marriott. Poland and the Czech Republic are seeing significant market growth because of their scientifically and technically educated workforces, says Marriott. Hungary has a more mature and slow-growing IT market but a greater availability of IT, management and entrepreneurial skills, he says.

Marriott estimates that the region could exceed $1 billion in outsourcing revenue by 2005, if economic problems and the mass emigration of knowledge workers are held at bay. But if companies like EPAM continue to grow, and if demand increases from the European Union, Russia's offshore development sector has a shot at the big leagues.

Trombly is a freelance writer in Belchertown, Mass. Contact her at maria@trombly.com.

OOPS

Read about the lessons one company learned from a Russian outsourcing project that failed:

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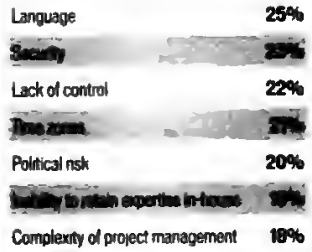
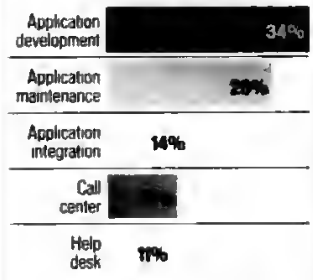
Offshore Barriers

What are the barriers to foreign outsourcing contracts?



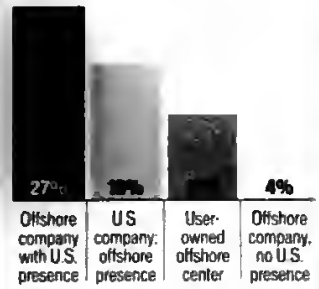
Foreign Tasks

What IT functions do you outsource to non-U.S. locations?



Different Models

Which types of offshore outsourcing organizations do you use?



Base: Survey of 252 corporate IT managers in the U.S., multiple responses allowed

SOURCE: COMPUTERWORLD AND INTERNUTV GROUP INC., CONCORD, MASS., APR. AND MAY 2003

BART PERKINS

Selecting the Right Offshore Vehicle

MANY CIOs are being told to move some of IT offshore. According to Gartner Inc., that number will reach 80% by next year. Good preparation includes selecting which functions to send offshore and determining which countries have the expertise needed. In addition, be aware that there are several categories of offshore companies from which to choose. There are variations in how they're structured, where they're managed and where the work actually gets done. These factors result in significant differences in scope, cost, risk and operational aggravation. Selecting the right vehicle will have a significant effect on the success of your offshore efforts.

Most offshore providers fall into one of the following categories:

Full-service. Traditional, large services firms (such as IBM, EDS, Fujitsu, Hitachi and Cap Gemini Ernst & Young) offer a wide scope of services. They have a fluent understanding of the market in their home countries as well as many other major markets. They have a proven track record in both IT services and business process outsourcing (BPO). These companies have recently hired large numbers of technical staffers in lower-cost countries, providing a unique opportunity to go offshore without really leaving home.

Consider full-service firms if you're sending a major, multifaceted chunk of your portfolio to one offshore provider — for example, development, maintenance and server farms. The more complex your outsourced portfolio, the stronger your need for breadth, flexibility and reduced risk. Unfortunately, full-service firms have a high cost structure and may offer little savings over doing the work in-house.

Established offshore. Initially, this was the only offshore segment. The best known of these (Tata, Wipro and Infosys) are in India and have excellent delivery capabilities within certain niches. Many started as "body shops" and have evolved to now offer BPO. They try to minimize cultural differences by employing an international sales force and staffers who will shift their work hours to accommodate your time zone. But their top management may or may not have a good grasp of the business environment in your country. Since these firms are owned abroad, you may experience some difficulties with legal and intellectual property issues.

What began as a great niche industry is fast becoming a full-service marketplace. Watch for these established offshore companies to mature rapidly and expand their service offerings. They're beginning to compete directly with full-service firms, putting pressure on their rate structures. Use them to save money when their service offerings meet your needs.

Homeshore-anchored. This is a company that's owned and anchored by a management team in your country but is essentially an offshore company because the majority of staffers are located in low-cost countries. Examples include Cognizant and Syntel in the U.S. and LogicaCMG in the U.K. These firms understand the markets of the countries where they do business and have excellent delivery capabilities in specific niches. They are cheaper than full-service providers but don't have their scope.

Emerging offshore. These smaller offshore firms have only recently entered global markets and are less familiar with business environments abroad. They offer cheap rates and are hungrier for business than better-known firms. Unfortunately, their delivery capabilities vary widely, and it may be difficult to evaluate their financial viability or expertise. Use such providers to reduce costs on targeted, controlled projects. They shouldn't be entrusted with large-scale projects because their pockets aren't yet deep enough.

Experimental offshore. These very small firms are generally body shops competing almost exclusively on price. They serve primarily as subcontractors to larger providers. Unless you have deep ties in their home countries, it's difficult to get accurate information on their expertise, delivery capabilities or financial stability. Avoid using experimental offshore providers unless you know exactly what you're getting, have an extremely tight rein on the project — and can tolerate some surprises.

Each category of offshore provider has arisen to meet a market demand. Make sure that your offshore choice takes into account your organization's tolerance for risk and aggravation, not just the desire to reduce costs. Choose a vehicle that will leverage your offshore efforts by providing the best chance for success on distant shores.

SNAPSHOTS

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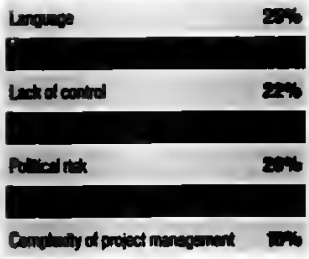

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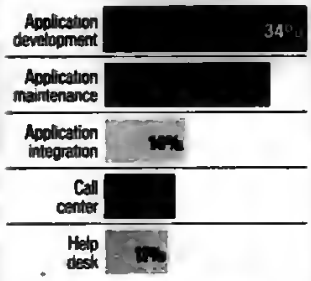

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Offshore company with U.S. presence
U.S. company; offshore presence
User-owned offshore center
Offshore company; no U.S. presence

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Craig Stedman, assistant News editor ..... (508) 820-8120
Mitch Betts, Features editor ..... (301) 262-8243
Tammy Peterman, Technology editor ..... (508) 820-7729
Jean Candiria, assistant Management editor ..... (508) 820-8562

REPARTERR

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Lamm Mearian, financial services; storage; IT management ..... (508) 820-8215
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RPIRIRR

Mark Hall, Opinions editor ..... (503) 391 1158
Frank Hayes, senior news columnist ..... (503) 252-0100

FEATRRER

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Robert L. Mitchell, senior editor ..... (508) 820-8177
Mark Hall, editor at large ..... (503) 391-1158
Gary H. Anthes, national correspondent ..... (703) 536-9233
Julia King, national correspondent ..... (610) 532-7599

COMPRTERWARLD.COM

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Sharon Machlis, managing editor/online ..... (508) 820-8231
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CONTRIRUTIRR COLARNIRTR

Peter Fox, Michael Gartenberg, Dan Gillmor, Paul Gillin, Thornton A. May, David Moschella, Bart Perkins, Nicholas Petreley, Paul A. Strassmann

CRNTRIRRTIRR WRITERR

Mary Brandel, Amy Helen Johnson, Russell Kay, Sami Lais, Kathleen Melymuka

GENERAL INFORMATION

TELEPHONE/FAX
Main phone number ..... (508) 879-0700
All editors unless otherwise noted below
Main fax number ..... (508) 875-8931
24-hour news tip line ..... (508) 820-7710

E-MAIL
Our Web address is www.computerworld.com.
Staff members' e-mail follows this form: firstname_lastname@computerworld.com.
For IDG News Service correspondents: firstname_lastname@idg.com.

LETTERS TO THE EDITOR
Letters to the editor are welcome and should be sent to: letters@computerworld.com. Include your address and telephone number.

MAIL ADDRESS
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Linux

The latest Microsoft-funded report, released last week by Forrester Research Inc. in Cambridge, Mass., looks at the total cost associated with developing and deploying Web-based portal applications on the Microsoft platform vs. Linux/J2EE.

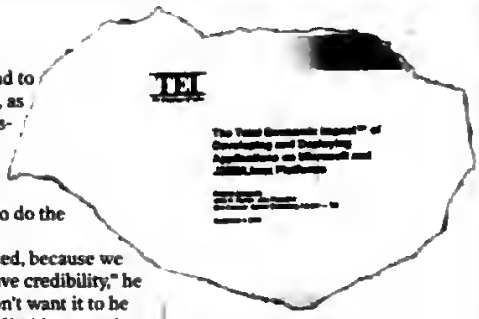
The report concludes that the Microsoft development platform offers a substantial cost advantage over Linux/J2EE for portal applications, largely as a result of the higher product costs and development complexity associated with the J2EE application servers and Unix-based database servers that the surveyed companies used. Forrester also concluded that Microsoft's development tools simplified development and reduced labor costs to build and administer custom portal applications.

But it didn't take long for rivals to question the credibility of the research. IBM drew attention to factors that it claimed "skewed" the results, such as the small interview sample (12 companies), the industries selected and the comparison products chosen.

Sun Microsystems Inc. also weighed in on the study's narrow scope. "The real enterprise has much broader needs in scaling, feature set, flexibility and security than is outlined in this study," said John Fowler, Sun's software chief technology officer.

It's certainly not uncommon for vendors to commission reports from industry analyst firms — and for their rivals to take shots at the results. But Forrester analyst John Rymer, the report's co-author, said his report sets itself apart with its high level of disclosure.

Rymer said some reports don't mention that they have been funded by vendors. He said he was upfront in telling Microsoft that the business relationship had to be disclosed, as well as the assumptions and qualifications that were made to do the research.



CRITICS of the Forrester report question whether the small sample size is statistically significant.

"We insisted, because we want it to have credibility," he said. "We don't want it to be some kind of hidden agenda where people have to sort tea leaves to figure out what the heck it means."

The report, for instance, spells out the amount of money and number of hours a company would expend for labor in developing and deploying custom portal applications. Rymer said a company could substitute its own figures to do its own comparison. "The term I use constantly is, 'Your mileage may vary.' You don't know until you plug in your own numbers," he said.

The report doesn't make clear how the 12 companies were selected. Rymer said Microsoft provided a range of customers, and Forrester surveyed some of its own contacts, including all five Linux users in the report.

'Average Cases'

Rymer defended the small sample size and the narrow scope on portal applications, saying the report's intent was to provide in-depth information from a representative group of "good, average cases."

Because the cost of the operating system is such a small percentage of the overall cost of developing, deploying and maintaining portal applications, the Linux part of the equation ironically doesn't factor critically in the conclusions. Instead, it's the cost of the J2EE-based products and the database servers and labor costs, Rymer acknowledged.

But one technology director at a midsize transportation company who requested anonymity called the report's conclusions "a joke." "What about the cost of maintaining service packs and system downtime from viruses?" he asked. "If I could quantify cost of downtime of desktops and servers, this will surely surpass Microsoft's estimates of cost."

James Kline, a project manager at The ServiceMaster Co. in Downers Grove, Ill., said he's suspicious about the report, since comparing any portal project with another is "absurd."

"For such a comparison to be meaningful, these projects would have to be very similar in structure and scale," he said.

Zeke Duge, CIO at Smart & Final Stores Corp. in Commerce, Calif., said that he is always skeptical of paid endorsements and that he doubts that the sample size is statistically significant. "Add to that the vested interest, and you have a marketing slogan masquerading as fact," he said.

Kevin Doyle, IT program manager at Hawaiian Electric Co. in Honolulu, said commissioned studies aren't necessarily faulty, but he scrutinizes them more carefully for potential bias.

"Microsoft has made it clear that it sees Linux and open-source as a significant competitive threat," Doyle said. "Just that statement alone places an enormous burden on a consultant to prove they are independent and that their study results reflect reality rather than Microsoft's desired state." ▶

Microsoft Plans Steady Stream of Evidence

The first Microsoft-commissioned analyst report on Linux emerged last November, and it took 10 months for the second one to see the light of day.

But the company has a strategy to present a steady stream of evidence on topics such as the cost, security, interoperability and reliability of the Microsoft software platform compared with the Linux stack, according to Martin Taylor, general manager of platform strategy at Microsoft.

During a recent interview with *Computerworld*, Taylor said Microsoft plans to use "credible third parties" in its quest to make sure that customers view its commissioned studies seriously. He added that the studies are "super, super expensive."

"If it's Martin Taylor Consulting that did the study, then you should raise your eyebrows. But Gartner, Meta, IDC – these folks have some credibility at stake as well, so we can't buy a study. We can't say, 'OK, well, make it work in our favor,' " he said.

Taylor said it's also important to post the process, methodology and tool set used, so customers can run their own tests or results to do further analysis. "Transparency" is also critical, he added.

The Microsoft-sponsored white paper released last year by Framingham, Mass.-based IDC, for instance, stated that Windows 2000 offered cost savings of 11% to 22% over a five-year period in the areas of network infrastructure, print serving, file serving and security applications. But the report also noted that Linux had a 6% cost advantage in the Web serving area.

"Maybe the Apache guys should send me a commission check," Taylor cracked.

Taylor said he recognizes "the damned if you do, damned if you don't" scenario he finds himself in as he tries to get out fact-based, credible information with the caveat that a report has been commissioned by Microsoft. But he said he knows of no other way to tell the story.

"If the third-party analyst won't sign up for it on their own, I don't know how else to get my message out there," Taylor said.

Microsoft's latest attempt to get out the "facts" about Linux began with a conversation about frustration, said John Rymer, an analyst at Forrester Research.

Rymer recalled a discussion that he had with two Microsoft marketing officials. He said they told him, "We're getting creamed over statements about Linux, and we just don't think it's a complete picture, and we don't think it's accurate. Would you be willing to take on a study?"

Rymer said the Microsoft officials initially wanted to look at the J2EE environment, but he convinced them they should first survey users to see "where the lion's share of the activity is."

"They were a little uncomfortable, because they didn't know what we were going to come up with," Rymer said, "but we persuaded them that it's the best way to go."

Rymer said the Microsoft official was firm that the report not take a slanted approach, since the company really does need to better understand the Linux phenomenon. If the result were negative, Microsoft could simply choose not to publish the report.

Taylor said Microsoft can work with analyst firms on the publishing, but he added, "Again, these are pretty credible folks, and the data is the data. Numbers are numbers."

– *Carol Silva*

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FRANK HAYES ■ FRANKLY SPEAKING

Hacker Helpers

WHAT DO YOU DO about someone like Adrian Lamo? Last week, Lamo turned himself in to U.S. marshals at the federal courthouse in Sacramento and was charged with hacking his way into the internal network of *The New York Times* and running up a $300,000 bill on the newspaper's LexisNexis database account [QuickLink 41209]. At that price, you can understand why the *Times* wasn't as forgiving as WorldCom, Yahoo and other companies that praised Lamo after he found security holes in their networks and then helped to fix them for free.

But what now? What do you do about a guy like that?

If you let him walk, you're ignoring his lawbreaking. If you lock him up, you're spending $40,000 a year to incarcerate a valuable security resource — at a time when security problems loom larger than ever before.

The smart thing would be to sentence him to community service and put him to work finding security problems in government networks and critical infrastructure.

After all, Lamo has a brain that's somehow peculiarly tuned for finding misconfigured proxy servers, undocumented Web servers and other paths from the public Internet to what are supposed to be private networks. He's the Internet version of a man who can walk through walls, using nothing more than a Web browser.

And amazingly, in his years of wandering through electronic doorways that were left open, Lamo never seems to have done significant harm until he used expensive LexisNexis searches from the *Times* network to look for his name in the news.

Until then, nobody wanted to blow the whistle on a well-meaning character who routinely broke computer-intrusion laws but left improved security behind him wherever he went.

So at a time when malicious hackers, antisocial script kiddies and genuine cyberterrorists are regularly launching worms, intrusions and denial-of-service attacks, why waste Lamo's skills on anything other than improving security?

But even if a federal judge is wise ennugh tn make the most of Lamo's talents, that leaves a question fnr the rest of us: What do we do about all the *other* people like him?

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

They're out there. They've been out there for decades, at least since the days 30 years ago when John "Cap'n Crunch" Draper and a group of blind teenagers regularly hacked the telephone system and then reported problems they found to pbone company employees — who didn't blow the whistle on them, even though that's what phone company policy demanded.

They're bright, curious, even belpful kids who like poking around communications networks. Today, they're kids who have always known PCs and barely remember a time when they didn't have Internet access.

Some of them will grow up to have an even better intuitive grasp of networks than Lamo. They'll walk through walls, too.

What will you do when you receive a message from one of them, proudly informing you that he has found a hole in your security?

Will you be able to get the maximum amount of infnrmation about the hole, so you can close it and track down any similar problems? Will you take the opportunity to discourage this kid from poking around in other people's networks — but not sound so threatening that you scare him off before you get the details of what he found? Will you know what to say — and what *not* to say, so you don't divulge any other information about your networks?

Most important: Does *everyone* in your IT shop know what to do when even the most helpful of hackers calls?

Make a plan. Make sure all your people know it. And make sure they'll stick to it.

Because when the next Adrian Lamo turns up, the last thing you want is for them to be wondering what to do. ◗

SHARK TANK

Just Do the Math

Customer of this newly upgraded B2B order entry system complains it's much slower than the old version. "Since they had 250 people ordering at a time, this was elevated to our top priority," B2B pilot fish says. It takes a week, but fish finds the trouble: The customer has also "upgraded" from one dial-up line for each user to a DSL connection everyone shares. "We drew lots to see who got to explain that each user didn't get 768Kbit/sec., but 3.072Kbit/sec.," says fish. "The customer went back to dial-up."

Just Cool It

To help cool a crowded server closet, IT pilot fish buys a small water-cooled air conditioner. But temperature in the closet swings wildly, and a new thermostat doesn't help. Fish is ready to junk it when one day he spots the network cabling guy making new connections – and using the cooling unit as a stool. "There he was with his big butt right on the thermostat as the unit ran its little heart out," says fish. "He looked at me and said, 'I think there's something wrong with the A/C. You better get this unit serviced.' "

Just Change It

This government-regulated online casino is working on a new version of its software, which will require regulators' OK. Pilot fish realizes he can cut paperwork by making sure the new version conforms to the already approved procedure document. So he does – and watches as fisk for it. "I am told that if I do not make some changes and resubmit the procedure document, it will look like my section was overlooked," fish says. "So I had one of my staff change the images around and resubmit it as new. Surprise, surprise – no problems."

Just Patch It

On the third day after this company's system is brought to its knees by the Blaster worm, PC support tech asks pilot fish if he has installed the patch support just posted. No, says fish – I did that three weeks ago, when the patch was made public. "I don't have time to argue," tech snaps. "Just install the patch before your machine gets infected!"

Just Schedule It

Boss calls pilot fish to suggest hiring temp support staff to handle the recent volume of virus and network problems. We're using overtime and creative scheduling to manage what's likely to be a short-term issue, fish says. And hiring and training someone would take at least three or four weeks. "I understand," says boss. "But we should somehow outstaff this up prior to future spikes in the number of calls."

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So at a time when malicious hackers, antisocial script kiddies and genuine cyberterrorists are regularly launching worms, intrusions and denial-of-service attacks, why waste Lamo's skills on anything other than improving security?

But even if a federal judge is wise enough to make the most of Lamo's talents, that leaves a question for the rest of us: What do we do about all the *other* people like him?

They're out there. They've been out there for decades, at least since the days 30 years ago when John "Cap'n Crunch" Draper and a group of blind teenagers regularly hacked the telephone system and then reported problems they found to phone company employees — who didn't blow the whistle on them, even though that's what phone company policy demanded.

They're bright, curious, even helpful kids who like poking around communications networks. Today, they're kids who have always known PCs and barely remember a time when they didn't have Internet access.

Some of them will grow up to have an even better intuitive grasp of networks than Lamo. They'll walk through walls, too.

What will you do when you receive a message from one of them, proudly informing you that he has found a hole in your security?

Will you be able to get the maximum amount of information about the hole, so you can close it and track down any similar problems? Will you take the opportunity to discourage this kid from poking around in other people's networks — but not sound so threatening that you scare him off before you get the details of what he found? Will you know what to say — and what *not* to say, so you don't divulge any other information about your networks?

Most important: Does *everyone* in your IT shop know what to do when even the most helpful of hackers calls?

Make a plan. Make sure all your people know it. And make sure they'll stick to it.

Because when the next Adrian Lamo turns up, the last thing you want is for them to be wondering what to do. ◗

Office manager escapes clutches of desk

"At last I'm free, thanks to Nokia Mobile Connectivity solutions...and it feels great," exclaims Mary Langer, office manager.

"I thought I was imprisoned at my desk forever – no hope of any release – but at last I'm free. Now I can visit more suppliers, get better deals and work whenever and however I want. Am I happy or am I happy...," Mary enthused at her first taste of freedom. Workers everywhere from CEOs to Account Managers are rejoicing today at the thought of a real breakthrough in their working lives. "Mobile Connectivity from Nokia means I can make better use of waiting time at the airport;" CEO, Don Baker, "which gives me more family time when I get home." Even sales manager, John Peters was overjoyed as he realized his field sales team could visit even more customers, now that they were able to securely access company data while on the move. "They can check emails from home, at the office," he said. "And best

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